

Positioner **GEMÜ 1436 cPos** Profibus-DP



OPERATING INSTRUCTIONS



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1. Technical Data GEMÜ 1436 cPos Profibus DP

Protocol flow

GSD data file G1436a.GSD

PNO ID 0x2079

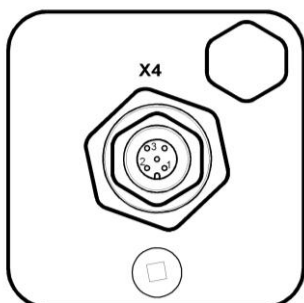
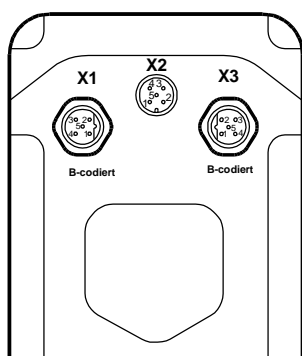
Baud rate

9.6	kbaud
19.2	kbaud
45.45	kbaud
93.75	kbaud
187.5	kbaud
500	kbaud
1.5	Mbaud
3	Mbaud
6	Mbaud
12	Mbaud

Profibus address 26
(Default setting)

2. Electrical connections

2.1. GEMÜ 1436 cPos



Connection	Pin	Signal name
X1	1	n.c.
M12 plug	2	RxD/TxD-N
B coding	3	n.c.
	4	RxD/TxD-P
	5	Shield

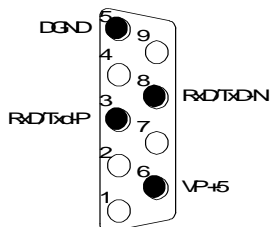
Connection	Pin	Signal name
X2	1	Uv, 24VDC supply voltage
M12 plug	2	n.c.
A coding	3	GND
	4	n.c.
	5	n.c.

Connection	Pin	Signal name
X3	1	BUS-VDC, +5V DC
M12 socket	2	RxD/TxD-N
B coding	3	DGND
	4	RxD/TxD-P
	5	Shield

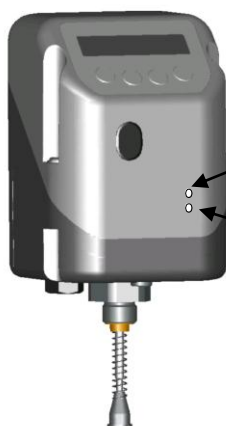
X4 is only available in versions with external travel sensor!

Connection	Pin	Signal name
X4	1	U+, Potentiometer signal voltage plus
M12 socket	2	U, Potentiometer signal output
A coding	3	U-, Potentiometer signal voltage minus
	4	n.c.
	5	n.c.

2.2. RS-485



2.3. Profibus DP status LED



Profibus DP status LED

Red light – no bus connection

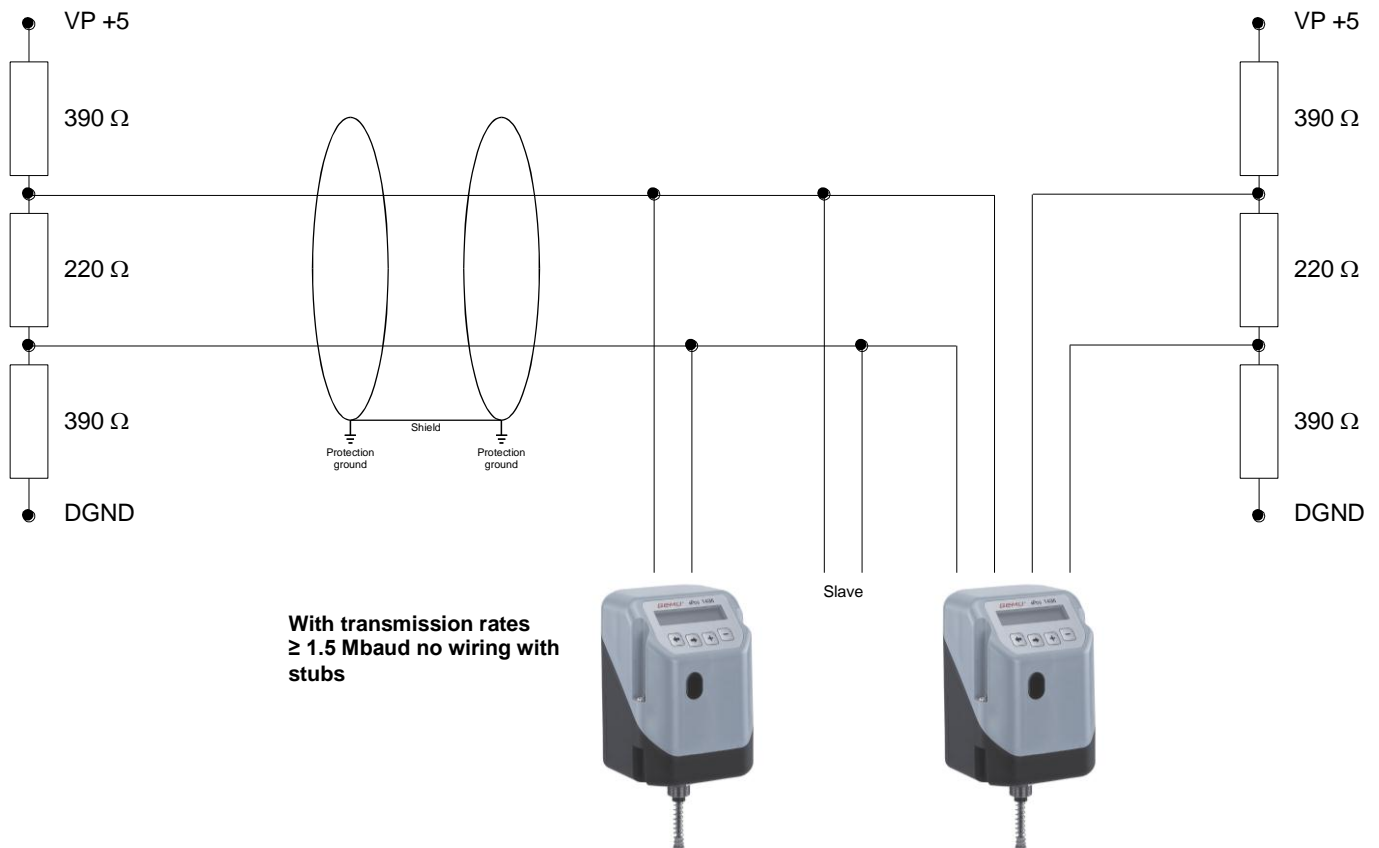
No light – bus connection ok

No function at Profibus DP design

2.4. Supply voltage

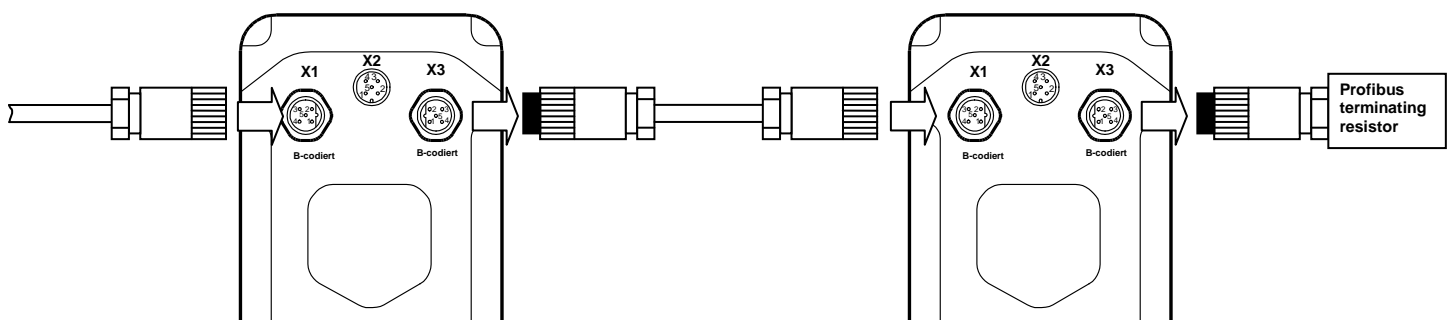
Plug	Pin	Signal name	Wiring
X2	1	24V DC supply voltage	<div> <div>Internal</div> <div>external</div> <div>24V DC voltage supply</div> </div>
X2	3	GND	

3. Wiring in the Profibus system



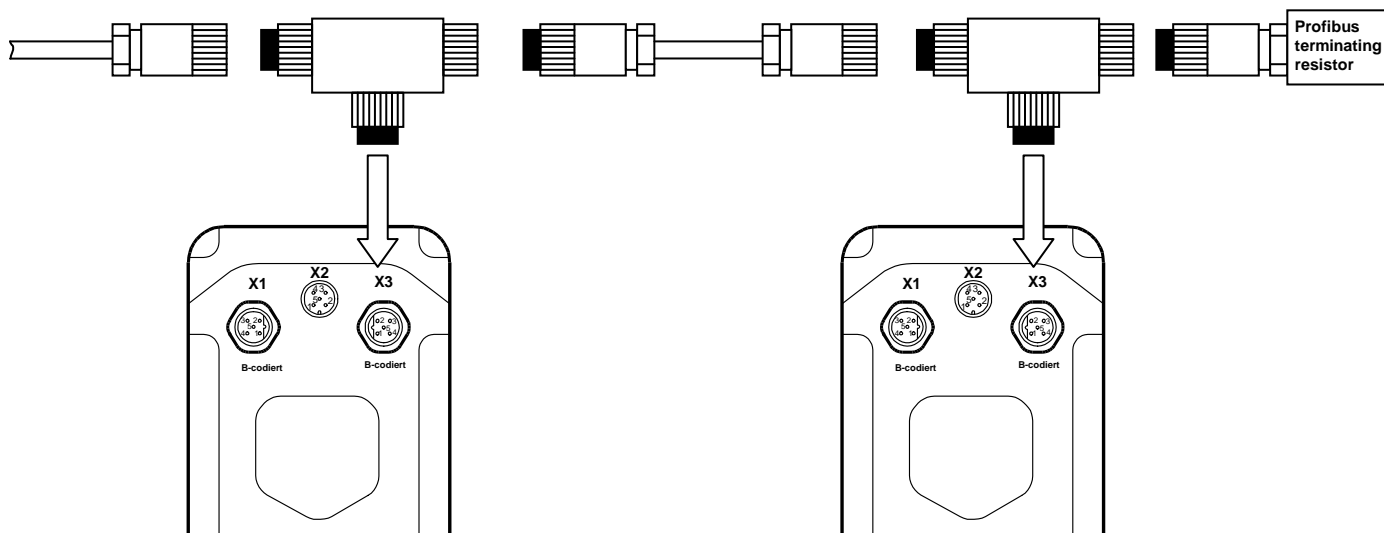
4. Serial wiring in the bus system

With a transmission rate ≥ 1.5 Mbaud.



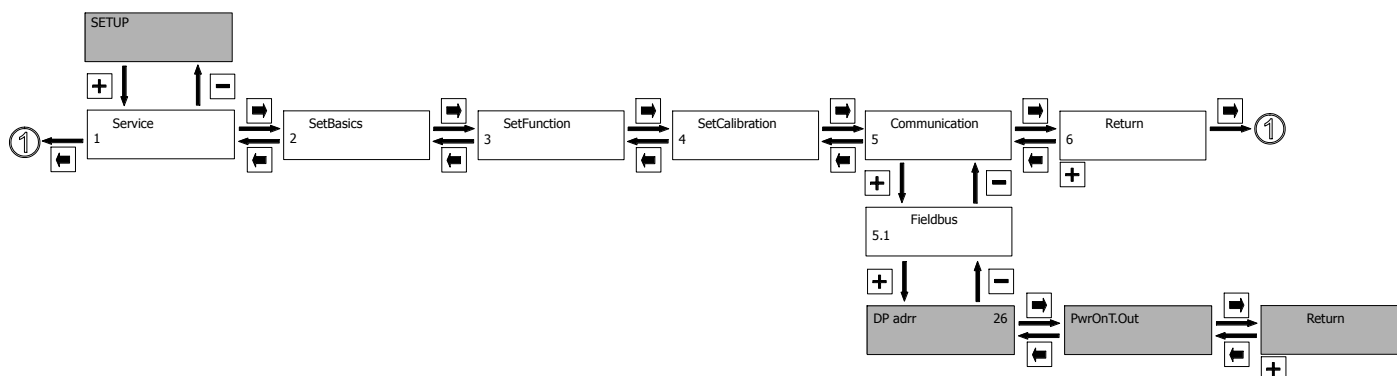
5. Bus wiring via stub

With a transmission rate $\leq 1.5\text{Mbaud}$.



6. Different configuration menu

The GEMÜ 1436 cPos with Profibus DP has the following expanded configuration menu compared to the standard 1436 cPos:



DP Adr

Enter the Profibus adress of the positioner.

PwrOnT.Out

Time delay between error detection and error message during switch on

7. Cyclic Profibus data

Input data: (Profibus ← cPos)

Addr. 0	Addr. 2	Addr. 3
2 bytes	1 byte	8 bytes
Position	Dig. Out	Parameters / Actions / Errors (see page 9)

Output data: (Profibus → cPos)

Addr. 0	Addr. 2	Addr. 4	Addr. 5
2 bytes	2 bytes	1 byte	8 bytes
Set value	Actual value	Dig. In	Parameters / Action / Errors (see page 9)

7.1. Set value

Profibus → cPos

The set value is transmitted from the master to the cPos in per mille.
Excessive set values (0x11) trigger an external diagnostic error.

0..1000
2 bytes

7.2. Actual value

Profibus → cPos

The actual value is transmitted from the master to the cPos in per mille.
Excessive actual values (0x13) trigger an external diagnostic error.

0..1000
2 bytes

7.3. Digital input

Profibus → cPos

The digital inputs are transmitted from the master to the cPos. There are 4 inputs available.

0..0x0F	CPos parameter	
1 byte	In W	Addr. 4.0
	In X	Addr. 4.1
	In 1	Addr. 4.2
	In 2	Addr. 4.3

7.4. Valve position

Profibus ← cPos

The valve position is transmitted from the cPos to the master in per mille.

In the Nolnit state, the position corresponds to the potentiometer range. After the initialisation (InitValve), the position corresponds to the valve area.

0..1000
2 bytes

7.5. Digital output

Profibus ← cPos

The digital outputs are transmitted from the cPos to the master. There are 3 outputs available.

cPos Parameter	
K1	Adr. 2.0
K2	Adr. 2.1
Ext. Diagnose	Adr. 2.7

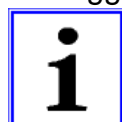
7.6. Parameter data: Parameters / Actions / Errors

cPos ↔ Profibus

Parameters / Actions / Errors:

Toggel	Para code	Para ID	Para value
1 byte	1 byte	2 bytes	4 bytes
8 bytes			

If the same information is sent more than once, the data record needs to be changed via the toggle byte.



The instructions 0x45, 0x44 and 0x57 to the query should be sent the instruction „N“ (NOP) , so that the query is processed only once.

7.6.1. No action

When using the “N” (NOP) instruction, no action is carried out. The response is another NOP instruction.

Inquiry from the master:

0xYY	0x4E (“N”)	0x00, 0x00	0x00, 0x00, 0x00, 0x00
1 byte	1 byte	2 bytes	4 bytes

Response of the cPos:

0xYY	0x4E (“N”)	0x00, 0x00	0x00, 0x00, 0x00, 0x00
1 byte	1 byte	2 bytes	4 bytes

7.6.2. Change parameters

The “S” (SET) instruction enables the change of a parameter in the cPos via the Profibus. As a response, the cPos returns the SET instruction with the changed parameter value. If the value is higher than the valid range, an external diagnostic error with code 0x21 is generated; if below, the error generated has code 0x20.

Where the parameter does not exist, the diagnostic error triggered has code 0x22, and the value returned is 0.

In case of a parameter change, the new value of the parameter is returned to the master together with a SET instruction.

Where the parameter does not exist, the value returned is 0.

Inquiry from the master:

0xYY	0x53 (“S”)	ID	Value of the parameter
1 byte	1 byte	2 bytes	4 bytes

Response of the cPos:

0xYY	0x53 (“S”)	ID	Value of the parameter
1 byte	1 byte	2 bytes	4 bytes

The individual parameters of the GEMÜ 1436 cPos are found on page 22.

Ex: The **Mode** parameter needs to be changed to **Manual**.

0xYY	0x53 (“S”)	ID	Value of the parameter
		Mode	Manual
0xYY	0x53	0x64	0x00, 0x00, 0x00, 0x02

7.6.3. Request parameters

The “G” (GET) instruction is used to request from the cPos the value of a parameter via the Profibus. The cPos responds with a GET instruction containing the parameter value. Where the parameter does not exist, an external diagnostic error with code 0x22 is triggered.

Inquiry from the master:

0xYY	0x47 (“G”)	ID	0x00 0x00 0x00 0x00
1 byte	1 byte	2 bytes	4 bytes

Response of the cPos:

0xYY	0x47 (“G”)	ID	Value of the parameter
1 byte	1 byte	2 bytes	4 bytes



When the parameter value in the GEMÜ 1436cPos changes, it is immediately sent to the Profibus master. There is no need to continuously request the parameter.

7.6.4. Read error list

The error list is requested using the “E” (Error List) instruction.

Inquiry from the master:

0xYY	0x45 (“E”)	Serial number of error in the list	0x00, 0x00, 0x00, 0x00
1 byte	1 byte	2 bytes	4 bytes

The last error is requested with 0x00 0x00

Response of the cPos:

0xYY	0x45 (“E”)	Serial number of error in the list	Error information
1 byte	1 byte	2 bytes	4 bytes



Attention:

- When a new error occurs, the serial numbering of the listed errors changes. Error 0 then becomes Error 1, Error 1 becomes Error 2, etc.
- Once the error list is full, the oldest error in the list is deleted.
- If no entry on the required number is found in the error list, the response value is 0xFF 0xFF 0xFF 0xFF
- With number 0 the current error can be monitored
- If there is no error in the error list, error 0x00 0x00 0x00 0x00 is displayed

7.6.5. Amount of active errors and readout of the active error

The “D” instruction is used to request the amount of active errors and the active error selected using the ID.

Inquiry from the master:

0xYY	0x44 (“D”)	Number of active error	0x00, 0x00, 0x00, 0x00
1 byte	1 byte	2 bytes	4 bytes

The first error are demanded with the number 0x00 0x01

Response of the cPos:

0xYY	0x44 (“D”)	Number of active error	Amount of active errors	Value of active error (selected via ID)
1 byte	1 byte	2 bytes	4 bytes	

Example:

The potentiometer of the cPos moves in the wrong direction, i.e. error code “020: Pot Wrong Dir” is active.

Inquiry from the master:

0x00	0x44	0x00, 0x01	0x00, 0x00, 0x00, 0x00
------	------	------------	------------------------

Response of the cPos:

0x00	0x44	0x00, 0x01	0x00, 0x01, 0x00, 0x14
------	------	------------	------------------------

7.6.6. Amount of active warnings and readout of the active warning

The "W" instruction is used to request the amount of active warnings and the active warning selected using the ID.

Inquiry from the master:

0xYY	0x57 ("W")	Number of active error	0x00, 0x00, 0x00, 0x00
1 byte	1 byte	2 bytes	4 bytes

The first warning are demanded with the number 0x00 0x01

Response of the cPos:

0xYY	0x57 ("W")	Number of active error	Amount of active errors	Value of active error (selected via ID)
1 byte	1 byte	2 bytes	4 bytes	

Example:

It is a failure of the compressed air has been discovered, i.e. the error "030: Missing Air" is active.

Inquiry from the master:

0x00	0x57	0x00, 0x01	0x00, 0x00, 0x00, 0x00
------	------	------------	------------------------

Response of the cPos:

0x00	0x57	0x00, 0x01	0x00, 0x01, 0x00, 0x1E
------	------	------------	------------------------

7.6.7. Error list

Error name	Parameter ID Hex	Parameter ID Dec	Description
NO ERROR	0x00 0x00	0	There are no errors
PotWrongDir	0x00 0x14	20	The potentiometer has recognised the wrong control function during initialisation
Wrong Func.	0x00 0x15	21	An incorrect control function was recognised during automatic initialisation
Pneumatic	0x00 0x16	22	A failure in the pneumatic was recognised during automatic initialisation
Leckage	0x00 0x17	23	A leakage was recognised during automatic initialisation
Air missing	0x00 0x1E	30	A failure of the compressed air was discovered
Bus Fault	0x00 0x28	40	Bus fault are detected
TrvlSensErr	0x00 0x3C	60	A cable break, short-circuit or exceeded range in the travel sensor connection or in the travel sensor was detected

7.6.8. Trigger action in the cPos

The "A" (Action) instruction is used to trigger an action in the cPos. Depending on the action to be triggered, additional parameters may be required.

As long as an action is active, no other action may be triggered. Where this is attempted, the cPos will ignore the new action and generate an external diagnostic error with code 0x40.

Inquiry from the master:

0xYY	0x41 ("A")	ID	Parameter
1 byte	1 byte	2 bytes	4 bytes



Only one action may be active at a time. If no action is active, the cPos responds as described in the individual actions.

If an action is active, the field bus will create the following response:

Response of the cPos:

0xYY	0x41 ("A")	ID	0xFF	Source	Number
1 byte	1 byte	2 bytes	1 byte	1 byte	2 bytes

Source:

Active action was started via the GEMÜ 1436 cPos keypad. → Acknowledge (quit) at the GEMÜ 1436 cPos	0x01
Active action was started via the e. ^{sy} -com interface of the GEMÜ 1436 cPos. → Close active browser window	0x02
Active action was started via the field bus. → Quit with instruction "Q" or → Select action again and quit	0x03

Number:

If the Profibus knows the action, the number is displayed here (see 7.6.7 ... 7.6.16).
If an action which is unknown to the Profibus is active, "0" is displayed here.

7.6.9. Quit Feldbus Event

The instruction "Q" (Quit) is used to stop an active event.
This event acknowledges all active events activated via the field bus.

Inquiry from the master:

0xYY	0x51 („Q")	0x00 0x00	0x00 0x00 0x00 0x00
1 Byte	1 Byte	2 Byte	4 Byte

Response of the cPos:

0xYY	0x51 („Q")	0x00 0x00	0x00 0x00 0x00 0x00
1 Byte	1 Byte	2 Byte	4 Byte

7.6.10. Nolnit

With “Nolnit“, the valve can be opened and closed manually if not yet initialised. Where this action is activated once the valve has been initialised, the cPos will generate an external diagnostic error with code 0x42.

Instruction from the master:

0xYY	0x41 (“A“)	0x00, 0x01	Function
1 byte	1 byte	2 bytes	4 bytes

Function:

Stop valve	0x00, 0x00, 0x00, 0x00
Open slowly	0x01, 0x00, 0x00, 0x00
Open quickly	0x02, 0x00, 0x00, 0x00
Close slowly	0x03, 0x00, 0x00, 0x00
Close quickly	0x04, 0x00, 0x00, 0x00
Open with PWM [0..1000]	0x05, 0x00, PWM High, PWM Low
Close with PWM [0..1000]	0x06, 0x00, PWM High, PWM Low
End event	0x07, 0x00, 0x00, 0x00



Attention: The direction relates to a control function 1 valve. If the cPos is set up on a control function 2 valve, the valve will move in the opposite direction.

The status reported is the current valve function selected.

Response of the cPos:

0xYY	0x41 (“A“)	0x00, 0x01	Status
1 byte	1 byte	2 bytes	4 bytes

Status:

Stop valve	0x00, 0x00, 0x00, 0x00
Open slowly	0x01, 0x00, 0x00, 0x00
Open quickly	0x02, 0x00, 0x00, 0x00
Close slowly	0x03, 0x00, 0x00, 0x00
Close quickly	0x04, 0x00, 0x00, 0x00
Open with PWM [0..1000]	0x05, 0x00, PWM High, PWM Low
Close with PWM [0..1000]	0x06, 0x00, PWM High, PWM Low
End event	0x07, 0x00, 0x00, 0x00

7.6.11. Clear Error List

This action clears the entries from the error list.

Instruction from the master:

0xYY	0x41 ("A")	0x00, 0x02	0x00, 0x00, 0x00, 0x00
1 byte	1 byte	2 bytes	4 bytes

Response of the cPos:

0xYY	0x41 ("A")	0x00, 0x02	Status
1byte	1 byte	2 bytes	4 bytes

Status:

Error list cleared (action is ended)	0x00, 0x00, 0x00, 0x01
Error list not cleared (action remains active)	0x00, 0x00, 0x00, 0x02

7.6.12. Set Default

This action sets the cPos to the default state.

Instruction from the master:

0xYY	0x41 ("A")	0x00, 0x03	0x00, 0x00, 0x00, 0x00
1 byte	1 byte	2 bytes	4 byte

Response of the cPos:

0xYY	0x41 ("A")	0x00, 0x03	Status
1 byte	1 byte	2 bytes	4 bytes

Status:

Default setting loaded (action is ended)	0x00, 0x00, 0x00, 0x01
Default setting not loaded (action remains active)	0x00, 0x00, 0x00, 0x02

7.6.13. Init valve

This action initialises the valve. The cPos here determines the open and closed position. It then checks the current control function and subsequently measures the opening and closing times and the valve characteristics.
Then the internal pilot valves are measured

Instruction from the master:

0xYY	0x41 ("A")	0x00, 0x04	Function
1 byte	1 byte	2 bytes	4 bytes

Function:

Start initialisation	0x00, 0x00, 0x00, 0x01
Cancel initialisation	0x00, 0x00, 0x00, 0x02
Quit Error	0x00, 0x00, 0xFF, 0x00

Response of the cPos:

0xYY	0x41 ("A")	0x00, 0x04	Status
1 byte	1 byte	2 bytes	4 bytes

In the status, the cPos reports the action currently taken.

Status:

Initialisation inactive	0x00, 0x00, 0x00, 0x00
Close position determined	0x00, 0x00, 0x00, 0x01
Open position determined	0x00, 0x00, 0x00, 0x02
Valve control function determined	0x00, 0x00, 0x00, 0x03
Opening and closing times measured	0x00, 0x00, 0x00, 0x04
Valve characteristics charted	0x00, 0x00, 0x00, 0x05
Pilot valves are measured	0x00, 0x00, 0x00, 0x06
Init Error 22 active	0x00, 0x00, 0x16, 0xFE
Init Error 22 receipt	0x00, 0x00, 0x16, 0xFF
Init Error 20 active	0x00, 0x00, 0x14, 0xFE
Init Error 20 receipt	0x00, 0x00, 0x14, 0xFF
Init Error 23 active	0x00, 0x00, 0x17, 0xFE
Init Error 23 receipt	0x00, 0x00, 0x17, 0xFF
Action can not be started	0x01, 0x00, 0x00, 0x00

7.6.14. GoClose

Control function 1 moves the valve to the closed position.

Control function 2 moves the valve to the open position.

Once the valve is in the required position, this needs to be communicated to the cPos.

This then takes the position as “closed”.

Instruction from the master:

0xYY	0x41 (“A”)	0x00, 0x05	Function
1 byte	1 byte	2 bytes	4 bytes

Function

Go to closed position	0x00,0x00,0x00,0x01
In closed position	0x00,0x00,0x00,0x02
Cancel Close function	0x00,0x00,0x00,0x03

Response of the cPos:

0xYY	0x41 (“A”)	0x00, 0x05	Status
1 byte	1 byte	2 bytes	4 bytes

Status:

Go to closed position	0x00,0x00,0x00,0x01
In closed position	0x00,0x00,0x00,0x02
Cancel Close function	0x00,0x00,0x00,0x03
Action can not be started	0x01, 0x00, 0x00, 0x00

7.6.15. GoOpen

Control function 1 moves the valve to the open position.

Control function 2 moves the valve to the closed position.

Once the valve is in the required position, this needs to be communicated to the cPos.

This then takes the position as “open”.

Instruction from the master:

0xYY	0x41 (“A”)	0x00, 0x06	Function
1 byte	1 byte	2 bytes	4 bytes

Function:

Go to open position	0x00,0x00,0x00,0x01
In open position	0x00,0x00,0x00,0x02
Cancel Open function	0x00,0x00,0x00,0x03

Response of the cPos:

0xYY	0x41 ("A")	0x00, 0x06	Status
1 byte	1 byte	2 bytes	4 bytes

Status:

Go to open position	0x00,0x00,0x00,0x01
In open position	0x00,0x00,0x00,0x02
Cancel Open function	0x00,0x00,0x00,0x03
Action can not be started	0x01, 0x00, 0x00, 0x00

7.6.16. Find function

This action determines the control function of the valve and the air flow of the inner pilot valves. When control function 2 is determined, the cPos swaps the open and closed positions so that the 0% displayed corresponds to the Closed position and 100% to the Open position.

Instruction from the master:

0xYY	0x41 ("A")	0x00, 0x07	Function
1 byte	1 byte	2 bytes	4 bytes

Function:

Activate Find function	0x00,0x00,0x00,0x01
Cancel Find function	0x00,0x00,0x00,0x02

Response of the cPos:

0xYY	0x41 ("A")	0x00, 0x07	Status
1 byte	1 byte	2 bytes	4 bytes

In the status, the cPos reports the current action taken.

Status:

Find Function inactive	0x00,0x00,0x00,0x01
Go to Start position	0x00,0x00,0x00,0x02
Output test pattern	0x00,0x00,0x00,0x03
Action can not be started	0x01, 0x00, 0x00, 0x00

7.6.17. Adjust time

This action moves the valve to the Closed and the Open positions while determining the opening and closing times.

Instruction from the master:

0xYY	0x41 ("A")	0x00, 0x08	Function
1 byte	1 byte	2 bytes	4 bytes

Function:

Activate Adjust Time	0x00,0x00,0x00,0x01
Cancel Adjust Time	0x00,0x00,0x00,0x02
Quit error	0x00,0x00,0xFF,0x00

Response of the cPos:

0xYY	0x41 ("A")	0x00, 0x08	Status
1 byte	1 byte	2 bytes	4 bytes

In the status, the cPos reports the current action taken.

Status:

Adjust Time inactive	0x00,0x00,0x00,0x01
Go to Start position	0x00,0x00,0x00,0x02
cPos times "go Close"	0x00,0x00,0x00,0x03
cPos times "go Open"	0x00,0x00,0x00,0x04
Error 22 active	0x00, 0x00, 0x16, 0xFE
Error 22 receipt	0x00, 0x00, 0x16, 0xFF
Action can not be started	0x01, 0x00, 0x00, 0x00

7.6.18. Find Coefficient

This action determines the valve characteristics at the specified calibration points. For this, the valve approaches these points several times.

Instruction from the master:

0xYY	0x41 ("A")	0x00, 0x09	Function
1 byte	1 byte	2 bytes	4 bytes

Function:

Activate Find Coefficient	0x00,0x00,0x00,0x01
Cancel Find Coefficient	0x00,0x00,0x00,0x02
Error receipt	0x00,0x00,0xFF,0x00

Response of the cPos:

0xYY	0x41 ("A")	0x00, 0x09	Status
1 byte	1 byte	2 bytes	4 bytes

In the status, the cPos reports the current action taken.

Status:

Find Coefficient inactive	0x00, 0x00, 0x00, 0x01
Go to calibration point	0x00, 0x00, calibration point, 0x02
Error 22 active	0x00, 0x00, 0x16, 0xFE
Error 22 receipt	0x00, 0x00, 0x16, 0xFF
Action can not be started	0x01, 0x00, 0x00, 0x00

7.6.19. Init Pilot

The action measures the internal pilot valves. For this, the minimum travel of the process valve is determined.

Instruction from the master:

0xYY	0x41 („A“)	0x00, 0x0A	Function
1 byte	1 byte	2 bytes	4 bytes

Function:

Activate Init Pilot	0x00,0x00,0x00,0x01
Cancel Init Pilot	0x00,0x00,0x00,0x02

Response of the cPos:

0xYY	0x41 („A“)	0x00, 0x09	Status
1 byte	1 byte	2 bytes	4 bytes

In the status, the cPos reports the current action taken.

Status:

Init Pilot not active	0x00, 0x00, 0x00, 0x01
Init Pilot active	0x00, 0x00, 0x00, 0x02
Error 22 active	0x00, 0x00, 0x16, 0xFE
Error 22 receipt	0x00, 0x00, 0x16, 0xFF
Error 23 active	0x00, 0x00, 0x17, 0xFE
Error 23 receipt	0x00, 0x00, 0x17, 0xFF
Action can not be started	0x01, 0x00, 0x00, 0x00

8. External diagnostic errors

Defined error messages:

0x01	Data length service data from master to slave incorrect or hardware error
0x02	Data length service data from slave to master incorrect or EEROM error
0x03	Internal memory error
0x04	Fieldbus hardware error or wrong fieldbus ID
0x05	Script error
0x07	RS transmitter buffer overflow
0x08	RS receiver buffer overflow
0x09	RS Timeout
0x0A	General fieldbus error
0x0B	Parity- or frame check error
0x0D	Fieldbus configuration error
0x0E	Fieldbus data buffer overflow
0x10	Specified set value too low
0x11	Specified set value too high
0x12	Specified actual value too low
0x13	Specified actual value too high
0x20	Specified parameter value too low
0x21	Specified parameter value too high
0x22	Parameter does not exist
0x30	Error in cPos
0x31	Error in cPos acknowledged
0x32	Warning in cPos
0x33	Warning in cPos acknowledged
0x34	No error list entry on the requested number available
0x40	In the 1436 an action is active which was activated by the fieldbus. Therefore no new action can be triggered
0x42	This action is currently not available
0x43	Action doesn't exist

9. Parameter Numbers

Parameter	Parameter ID Hex	Parameter ID Dec	Access	Value range
Mode	0x00, 0x64	100	Write	0: OFF 1: Auto 2: Manual 3: Manual-Flex 4: Test

SETUP

Service				
I/O Status				
ActiveParaSet	03E8	1000	Read	0: P1 1: P2 2: P3 3: P4
Pot Min	03E9	1001	Read	[0..1000] *0,1 %
Pot Max	03EA	1002	Read	[0..1000] *0,1 %
Proc W *	03EB	1003	Read	[0..1000] *0,1 %
Proc X *	03EC	1004	Read	[0..1000] *0,1 %
Pos W	03ED	1005	Read	[0..1000] *0,1 %
Pos X	03EE	1006	Read	[0..1000] *0,1 %
Pot Abs	03EF	1007	Read	[0..1000] *0,1 %
Pos Ctrl Out	03F0	1008	Read	[-1000..1000] *0,1 %
Proc Ctrl Out	03F1	1009	Read	[0..1000] *0,1 %
Diagnosis				
Operating hour	044C	1100	Read	[0..99 999] h
Operating minute	044D	1101	Read	[0..59] min
Operating second	044E	1102	Read	[0..59] s
Warnings	044F	1103	Write	0: ON 1: OFF
Errors	0450	1104	Write	0: ON 1: OFF
SensTest	0451	1105	Write	0: Disable 1: Enable1

SetBasics				
CalPointQty	07D0	2000	Write	[1..19]
D.Refresh	07D1	2001	Write	[1..10] *0,1s
Dlight	07D2	2002	Write	0: ON 1: ON Key
AutoReturn	07D3	2003	Write	[1..60] min
HelpLanguage	07D4	2004	Write	0: D 1: GB
HelpText	07D5	2005	Write	0: ON 1: OFF
PwrOnMode	07D6	2006	Write	0: Fast 1: Safe

* only available with version with integrated process controller

SetBasics				
Init Valve				
CtrlFn	0834	2100	Write	0: NC 1: NO 2: DA 3: Boost NC 4: Boost NO 5: Auto 6: Auto NC 7: Auto NO 8: Auto DA 9: Auto NC B 10: Auto NO B
adjtTimeClose	0835	2101	Read	[0..999] *0,1s
adjtTimeOpen	0836	2102	Read	[0..999] *0,1s
SetFunction				
ProcCtrlMode *	0BB8	3000	Write	0: OFF 1: ON
DeadBand	0BB9	3001	Write	[1..250] *0,1%
CpyParaSet	0BBA	3002	Write	0: OFF 1: P1<=W 2: P1=>P2 3: P1<=P2 4: P1=>P3 5: P1<=P3 6: P1=>P4 7: P1<=P4
ProcCtrl				
Proc-P *	0C1C	3100	Write	[0..1000]*0,1
Proc-I *	0C1D	3101	Write	[0..9999]*0,1s
Proc-D *	0C1E	3102	Write	[0..1000]*0,1
Proc-T *	0C1F	3103	Write	[1..10 000] ms
IxType	0C20	3104	Write	0: OFF 1: RC 2: avr
IxFILTER	0C21	3105	Write	[10...2000] *0,01s
PosCtrl				
Pos P	0C80	3200	Write	[0..1000] *0,1
Pos D	0C81	3201	Write	[0..1000] *0,1
Pos T	0C82	3202	Write	[1..5000] ms
MinPos	0C83	3203	Write	[0..1000] *0,1 %
MaxPos	0C84	3204	Write	[0..1000] *0,1 %
closeTight	0C85	3205	Write	[0..200] *0,1 %
openTight	0C86	3206	Write	[800..1000] *0,1 %
Digital Input				
In W	0CE4	3300	Write	0: OFF 1: OFF/ON 2: Save/ON 3: ParamSetB0 4: ParamSetB1 5: Poti/Ix
In X	0CE5	3301	Write	0: OFF 1: OFF/ON 2: Save/ON 3: ParamSetB0 4: ParamSetB1 5: Poti/Ix

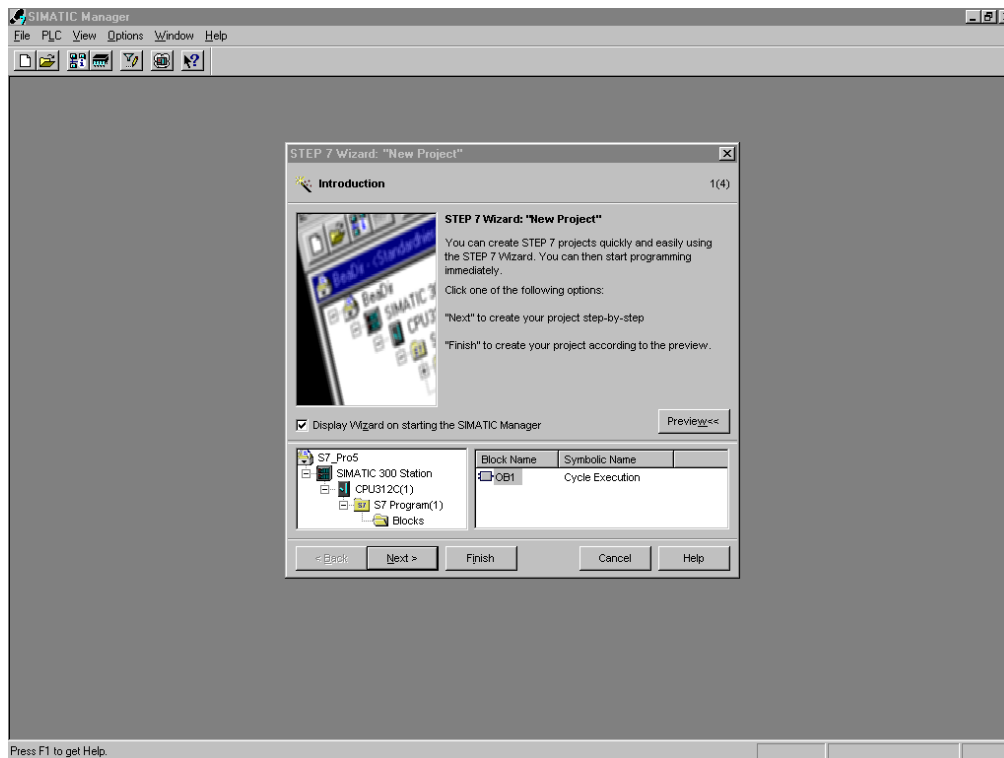
* only available with version with integrated process controller

SetFunction					
Digital Input					
In 1	0CE6	3302	Write	0: OFF 1: OFF/ON 2: Save/ON 3: ParamSetB0 4: ParamSetB1 5: Poti/lx	
In 2	0CE6	3303	Write	0: OFF 1: OFF/ON 2: Save/ON 3: ParamSetB0 4: ParamSetB1 5: Poti/lx	
Digital Output					
K1 Switch	0D48	3400	Write	0: NO 1: NC	
K1 Fn	0D49	3401	Write	0: No 1: P min 2: P max 3: P min/max 4: W min 5: W max 6: W min/max 7: X min 8: X max 9: X min/max 10: Active 11: Error 12: Warning 13: SSE min 14: SSE max 15: SSE min/max	
AlarmMinK1	0D4A	3402	Write	[2..998] *0,1%	
AlarmMaxK1	0D4B	3403	Write	[2..998] *0,1%	
SSE1Time	0D52	3410	Write	[1..1000] *0,1s	
K2 Switch	0D4C	3404	Write	0: NO 1: NC	
K2 Fn	0D4D	3405	Write	0: No 1: P min 2: P max 3: P min/max 4: W min 5: W max 6: W min/max 7: X min 8: X max 9: X min/max 10: Active 11: Error 12: Warning 13: SSE min 14: SSE max 15: SSE min/max	
AlarmMinK2	0D4E	3406	Write	[2..998] *0,1%	
AlarmMaxK2	0D4F	3407	Write	[2..998] *0,1%	
SSE1Time	0D53	3411	Write	[1..1000] *0,1s	
ErrorTime	0D50	3408	Write	[2..1000] *0,1s	
ErrorAction	0D51	3409	Write	0: Close 1: Open 2: Hold	

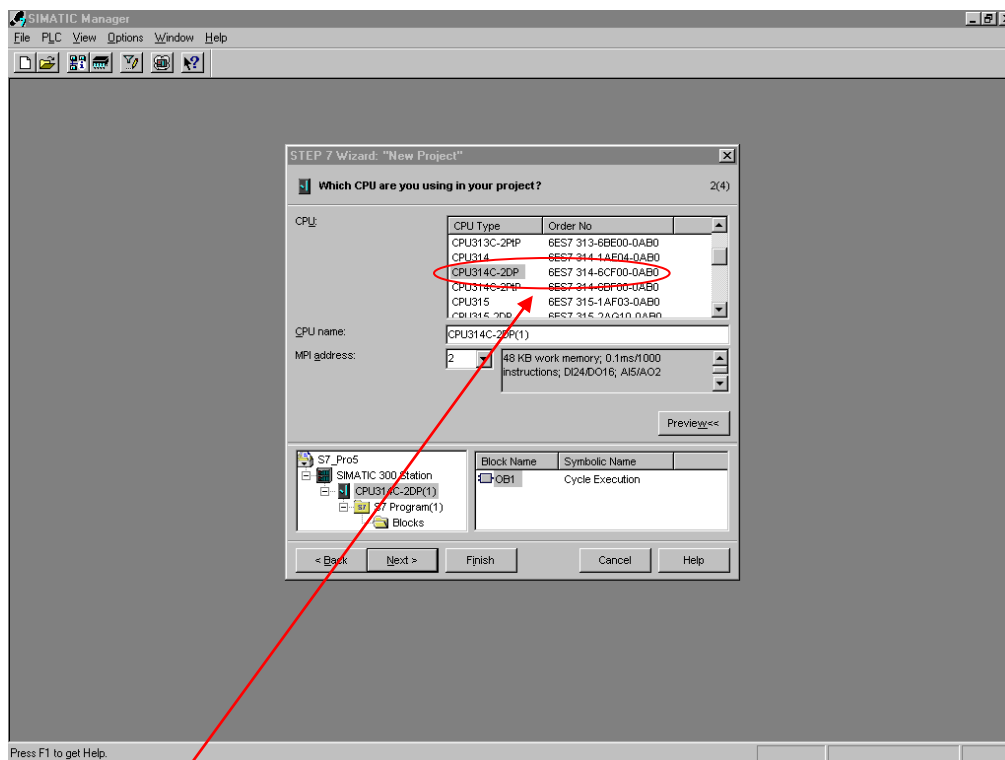
SetCalibration				
X-Direction *	0FA0	4000	Write	0: rise 1: fall
W-Direction	0FA1	4001	Write	0: rise 1: fall
W-Function	0FA2	4002	Write	0: lin. 1: 1:25 2: 1:50 3: free
Y-Direction*	0FA3	4003	Write	0: rise 1: fall
Pot Dir	0FA4	4004	Write	0: rise 1: fall
OutMinPos	0FA5	4005	Write	[0..1000] *0,1 %
OutMaxPos	0FA6	4006	Write	[0..1000] *0,1 %
Set W free				
W 0%	1004	4100	Write	[0..1000] *0,1 %
W 10%	1005	4101	Write	[0..1000] *0,1 %
W 20%	1006	4102	Write	[0..1000] *0,1 %
W 30%	1007	4103	Write	[0..1000] *0,1 %
W 40%	1008	4104	Write	[0..1000] *0,1 %
W 50%	1009	4105	Write	[0..1000] *0,1 %
W 60%	100A	4106	Write	[0..1000] *0,1 %
W 70%	100B	4107	Write	[0..1000] *0,1 %
W 80%	100C	4108	Write	[0..1000] *0,1 %
W 90%	100D	4109	Write	[0..1000] *0,1 %
W 100%	100E	4110	Write	[0..1000] *0,1 %
Scaling				
Scaling	1068	4200	Write	0: OFF 1: ON
Decimal point	1069	4201	Write	[0..2]
4mA△	106A	4202	Write	[-999..9999]
20mA△	106B	4203	Write	[-999..9999]
Communication				
Field bus\DP Adr	13EC	5100	Write	[1..126]
PwrOnT.Out	13ED	5101	Write	0...300 s

* only available with version with integrated process controller

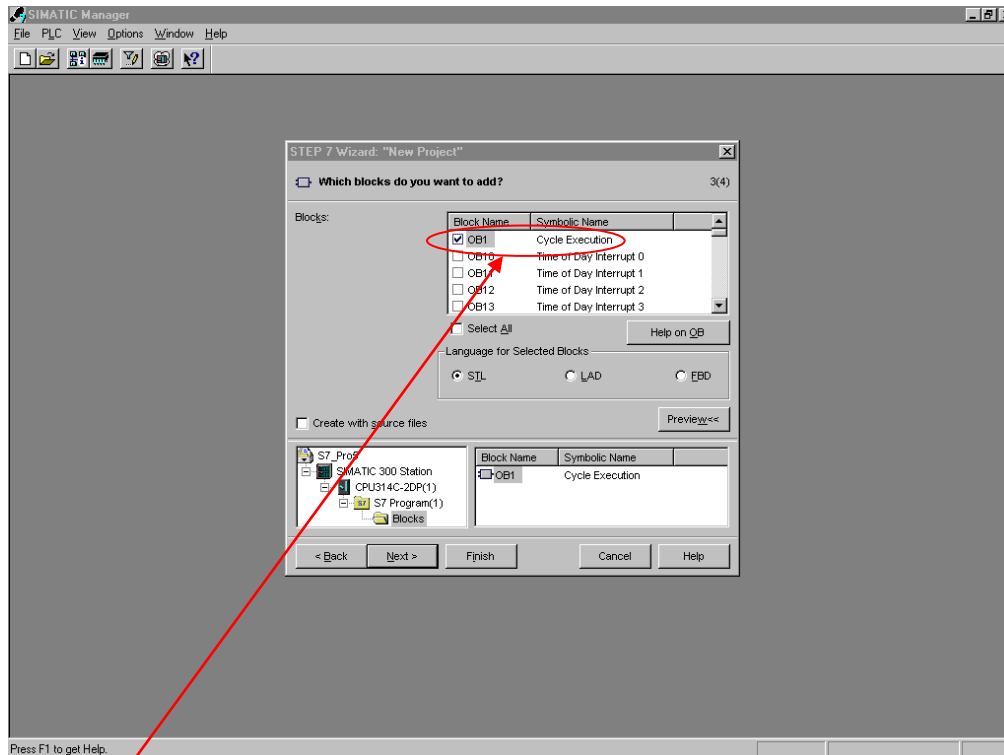
10. Configuration example using SIEMENS S7



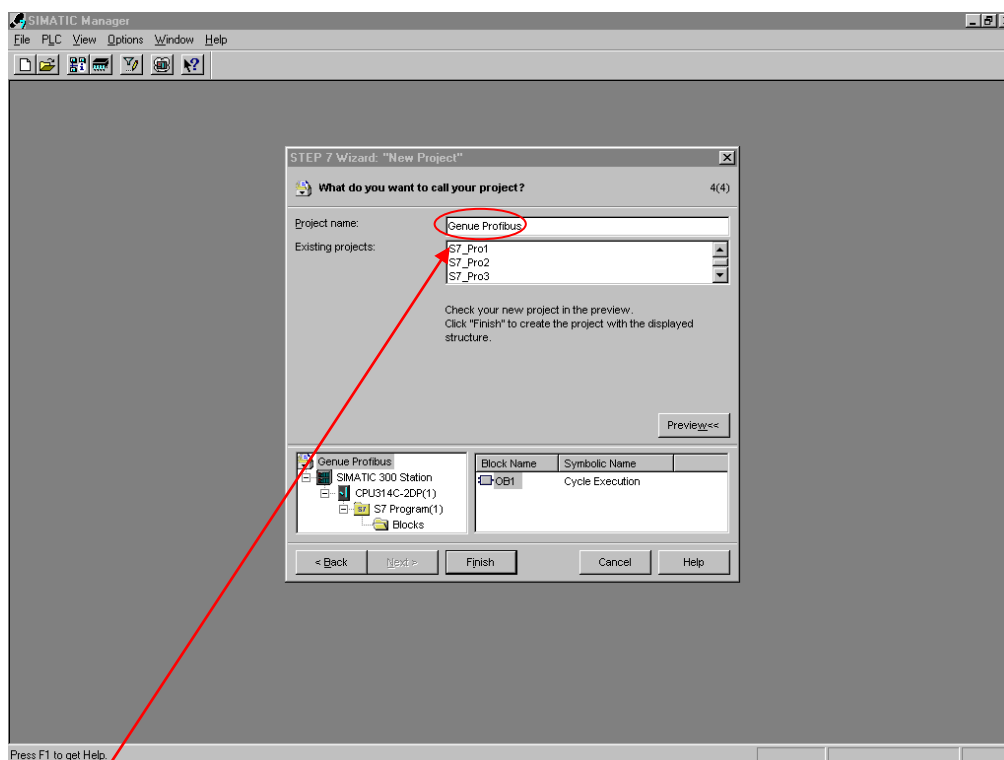
Start SIMATIC Manager and click on "Next" to continue



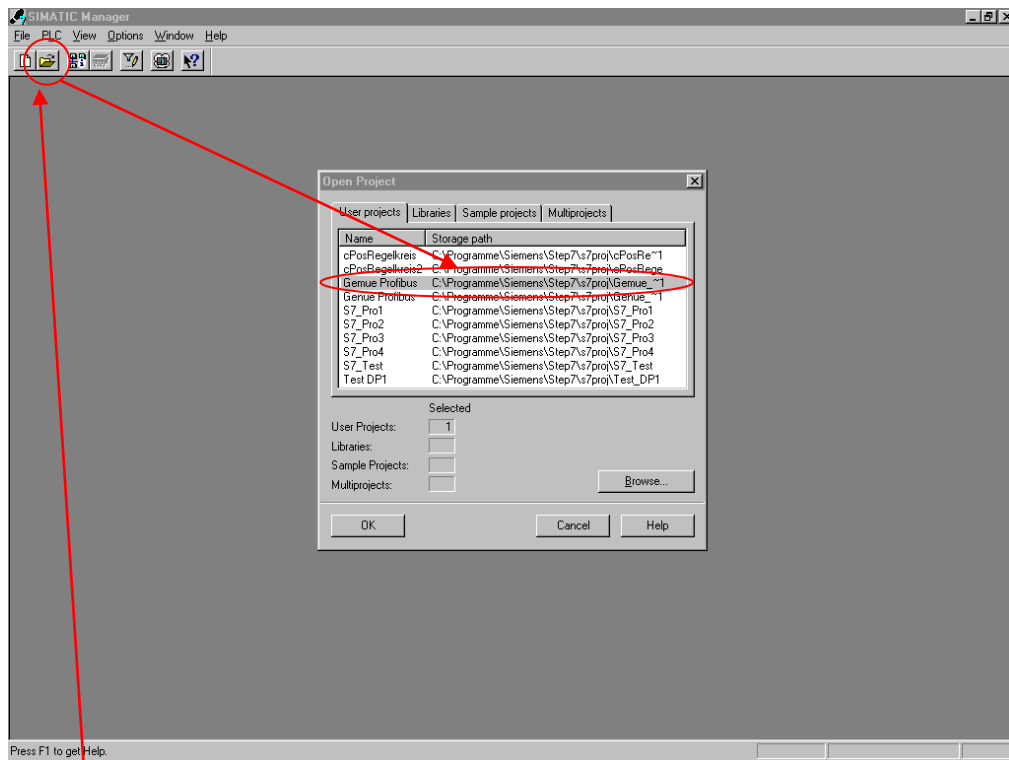
Select SPS type and click on "Next" to continue



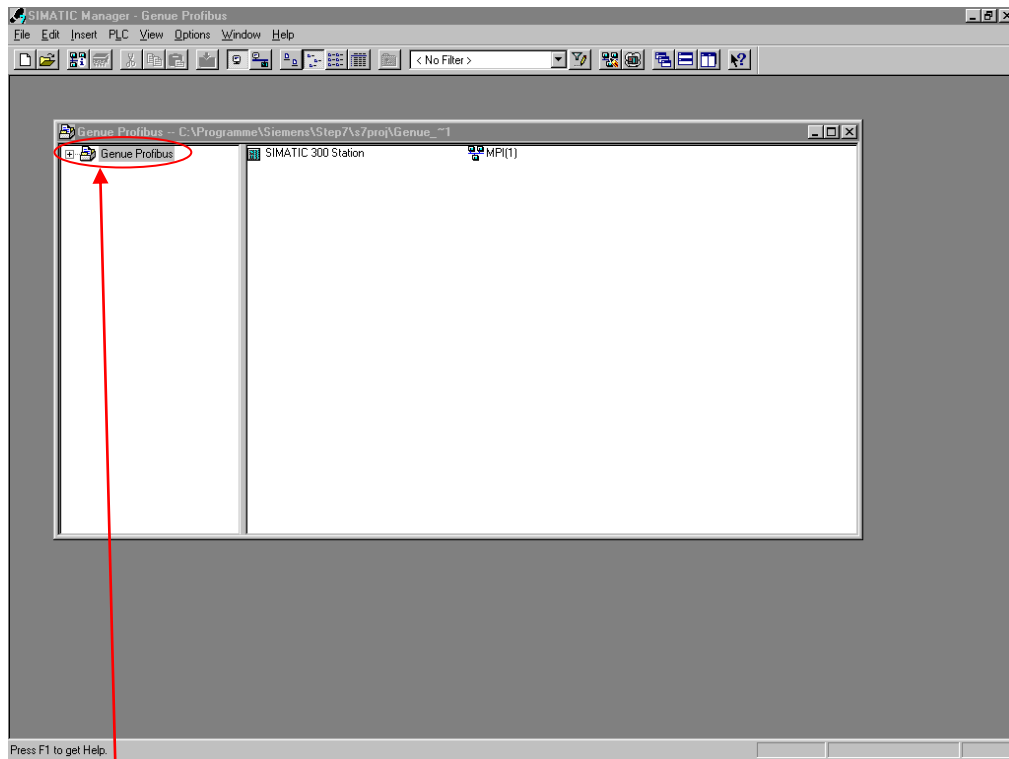
Insert new module and click on "Next" to continue



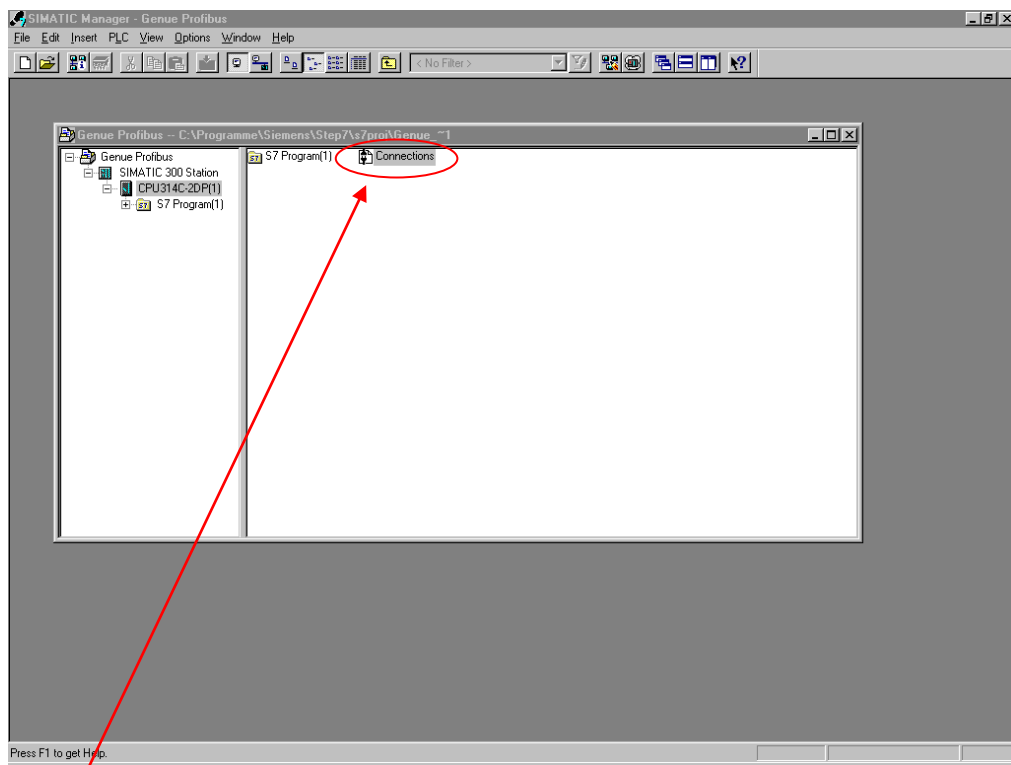
Enter project name and create project by clicking on "Finish"



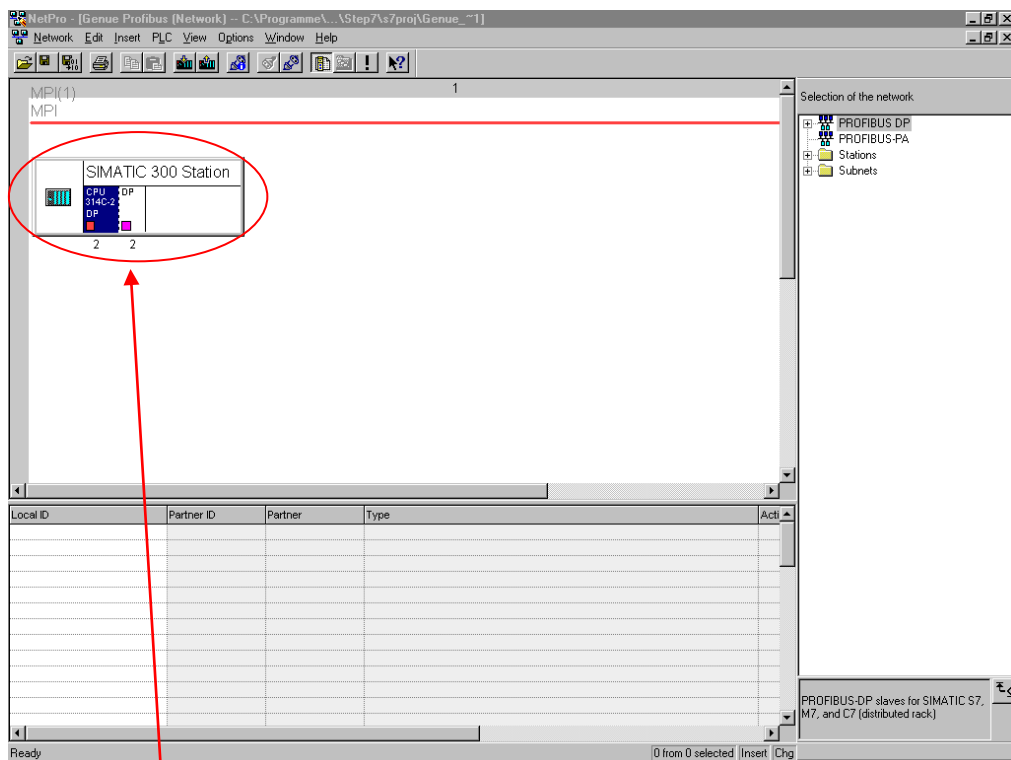
Open new project



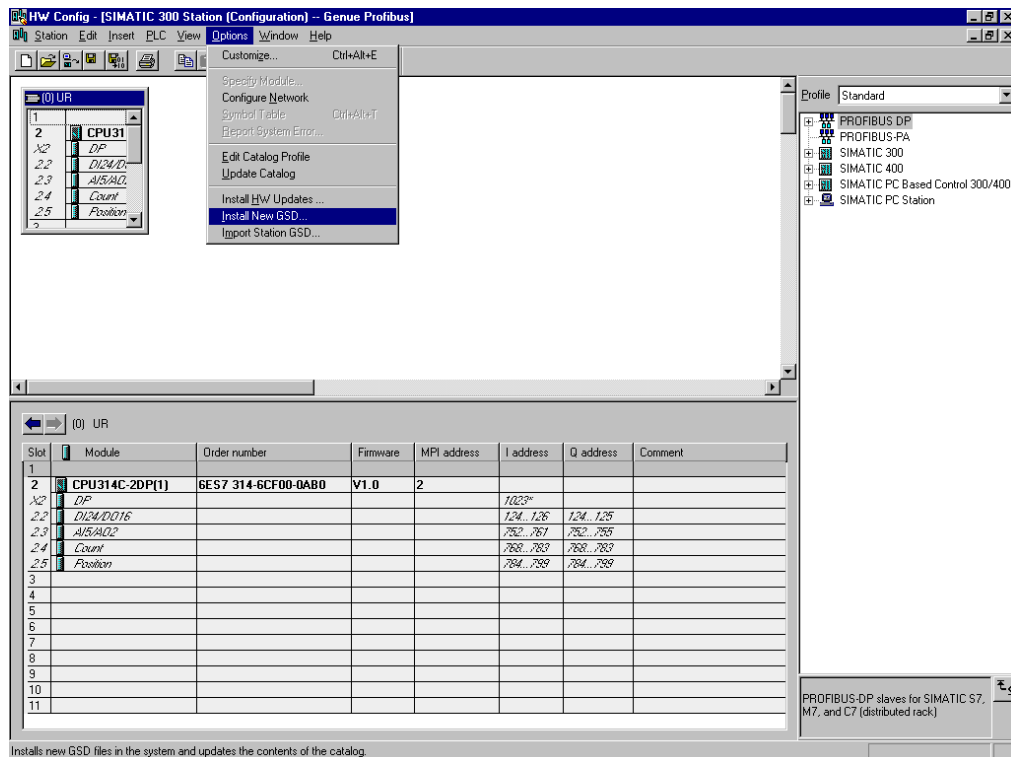
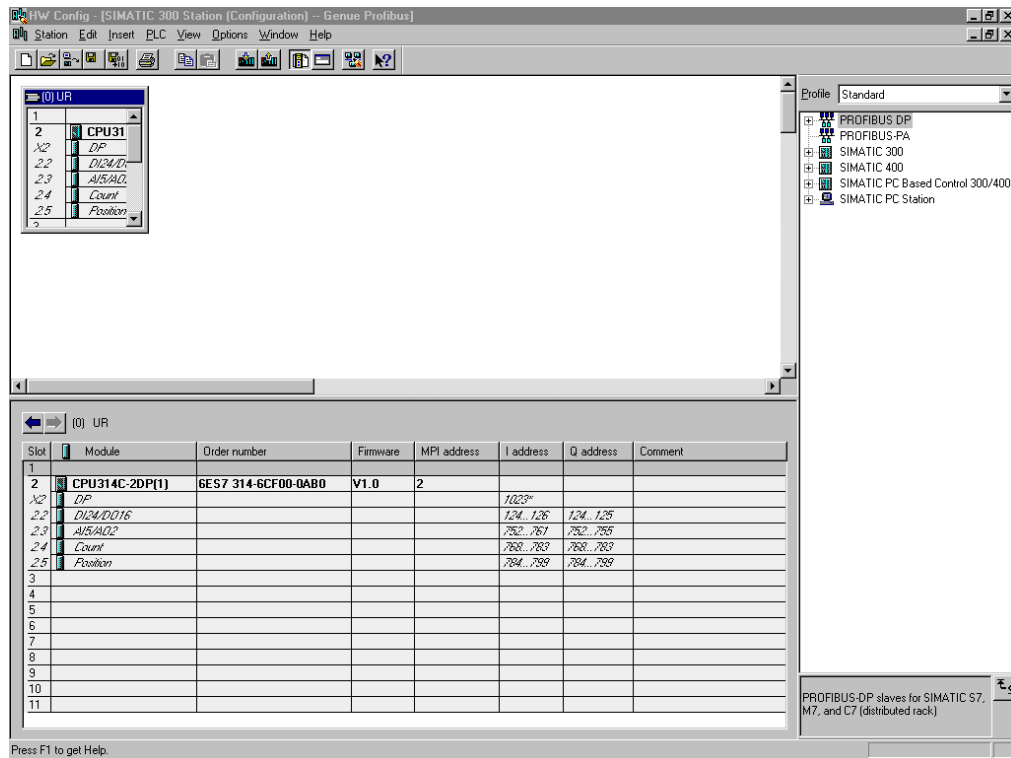
Open folder



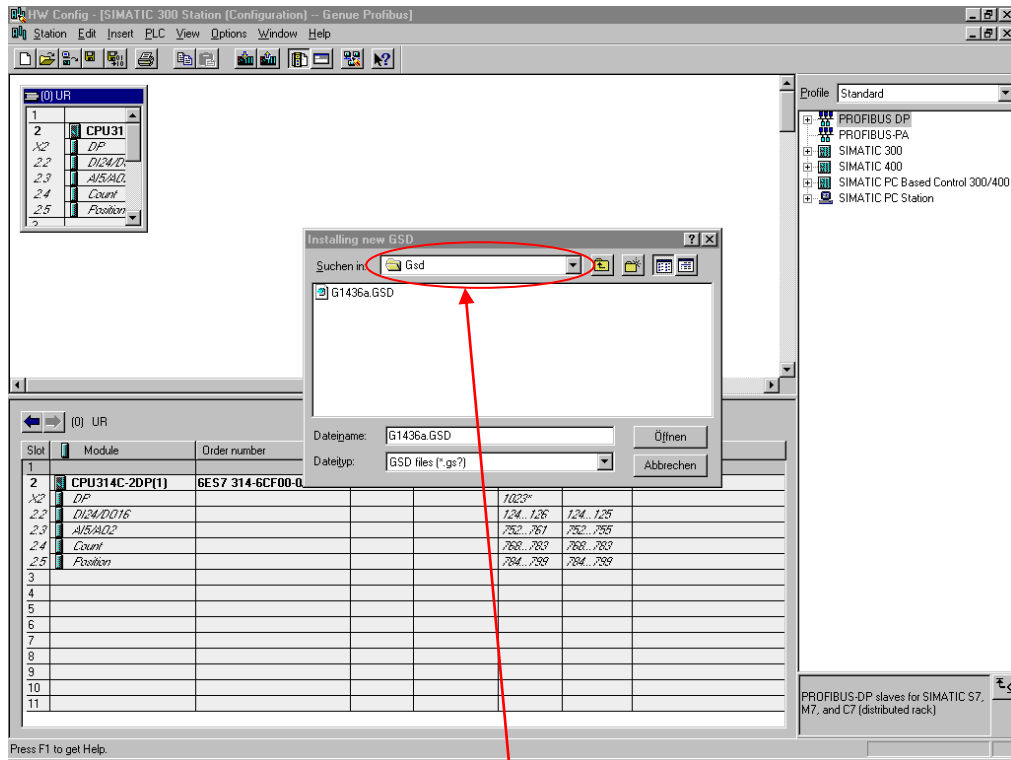
Configure project (double-click)



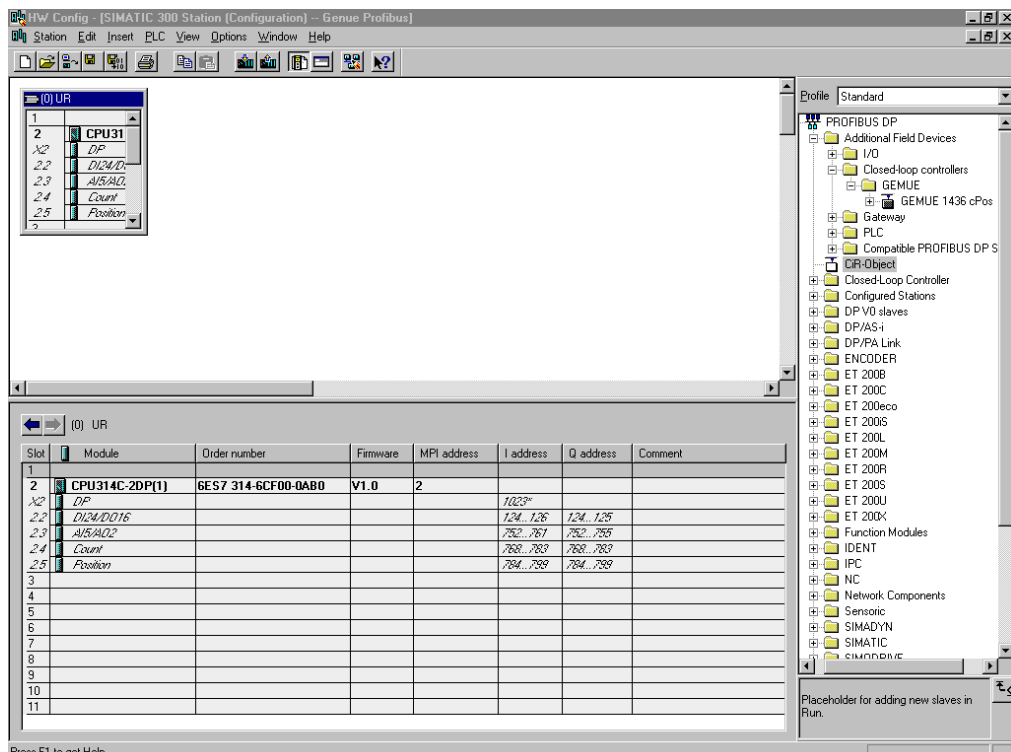
Activate window with double-click

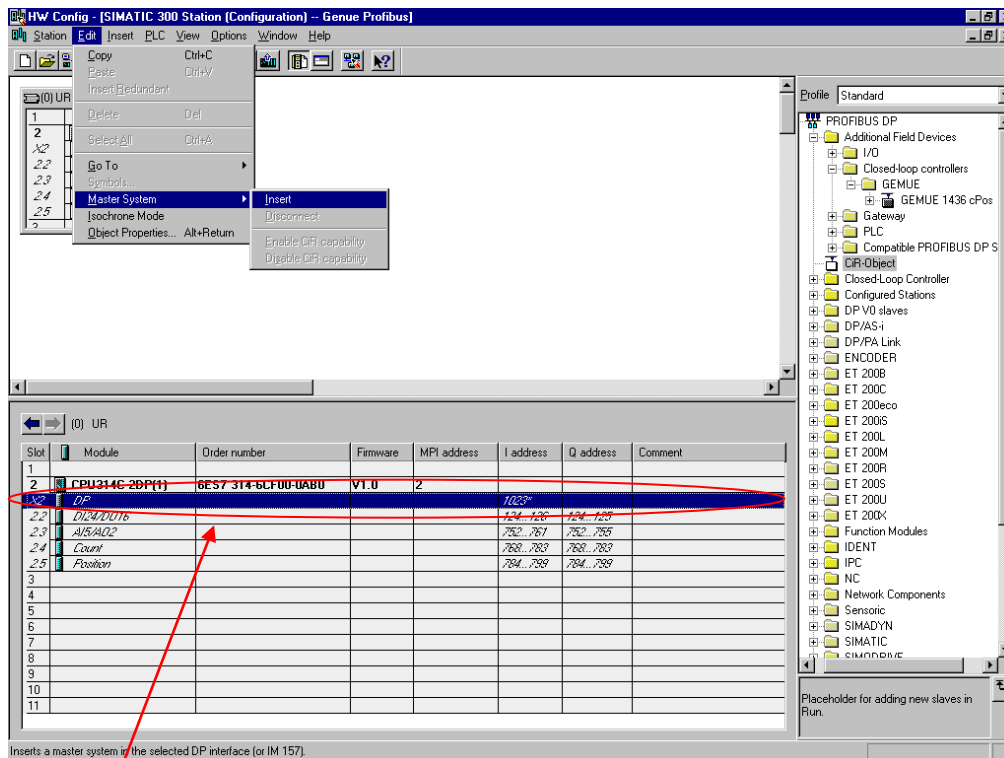


Install new GSD file (G1436a.GSD)

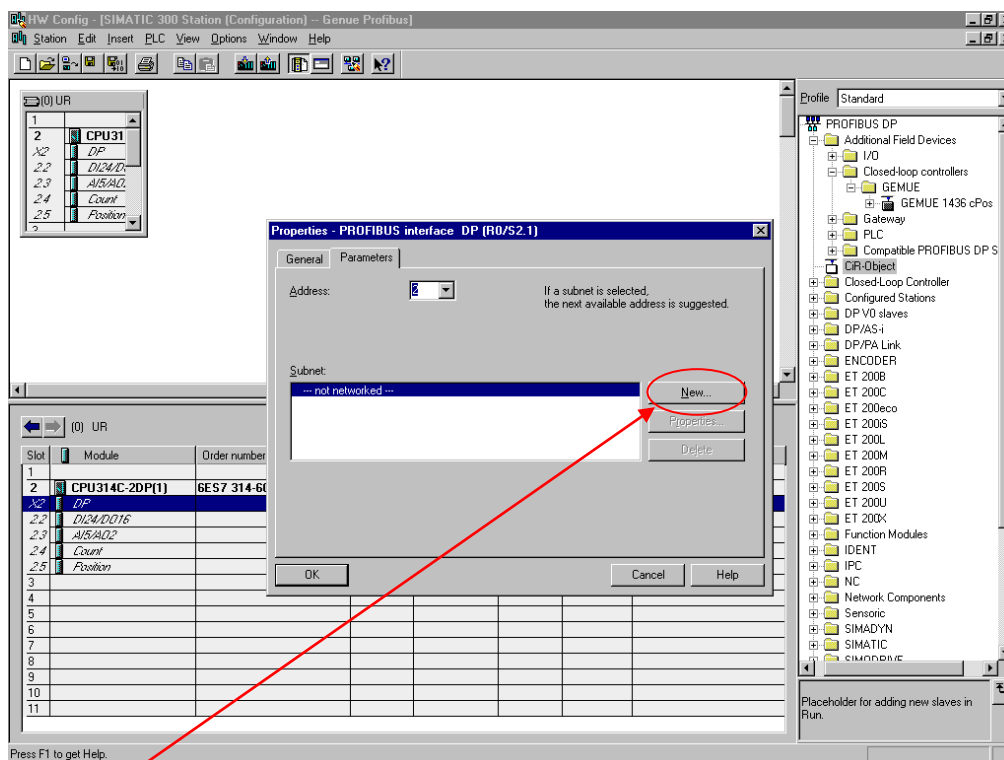


The GSD file is on the CD Rom supplied with every controller

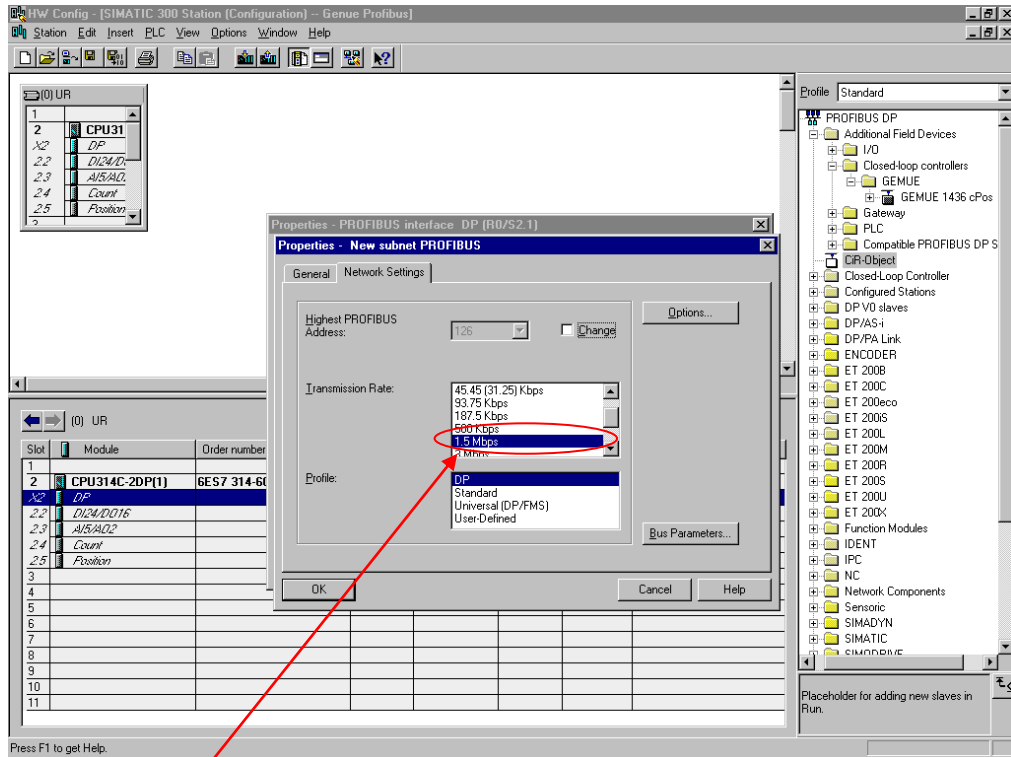




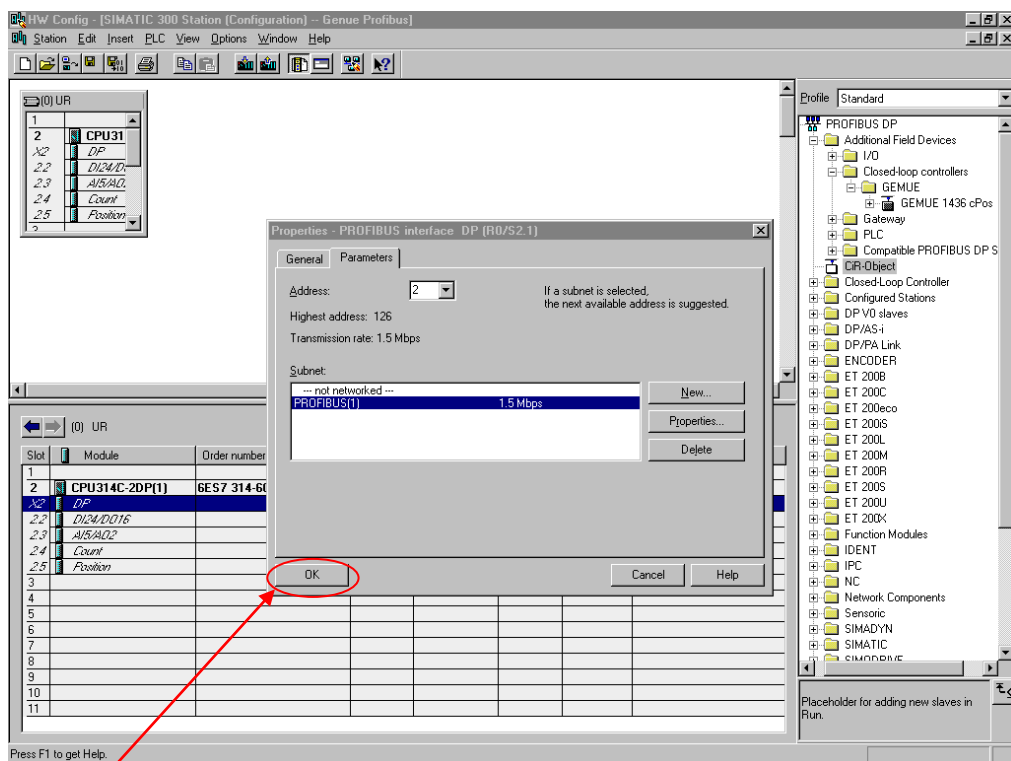
Select "DP" line



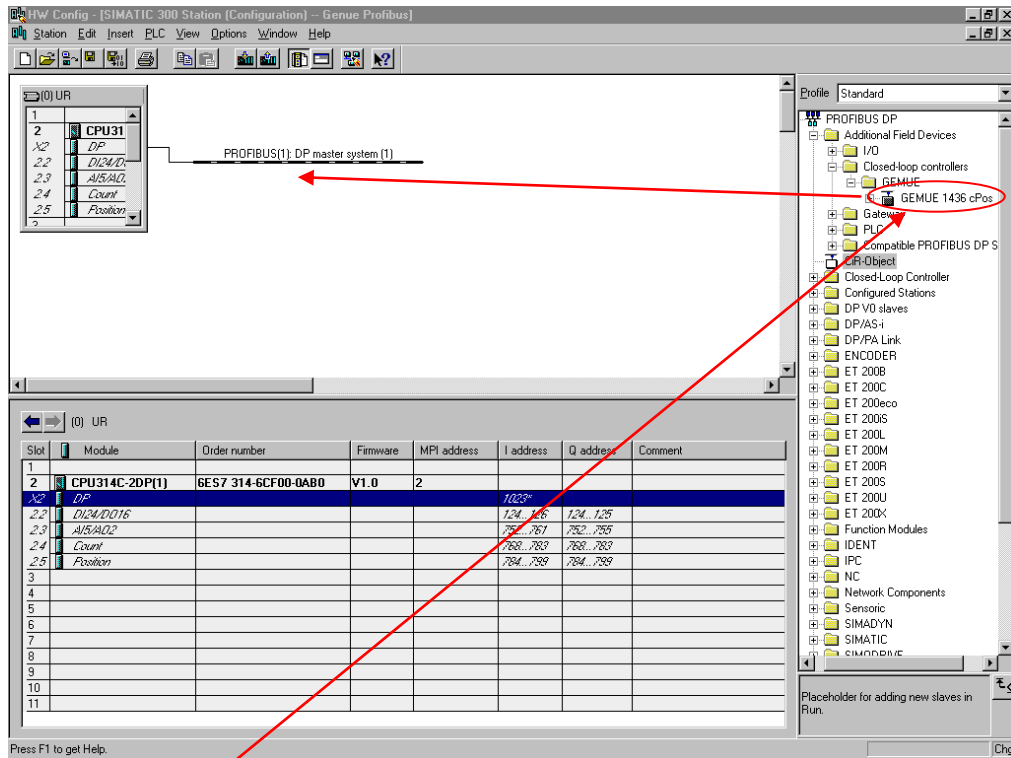
Select "New"



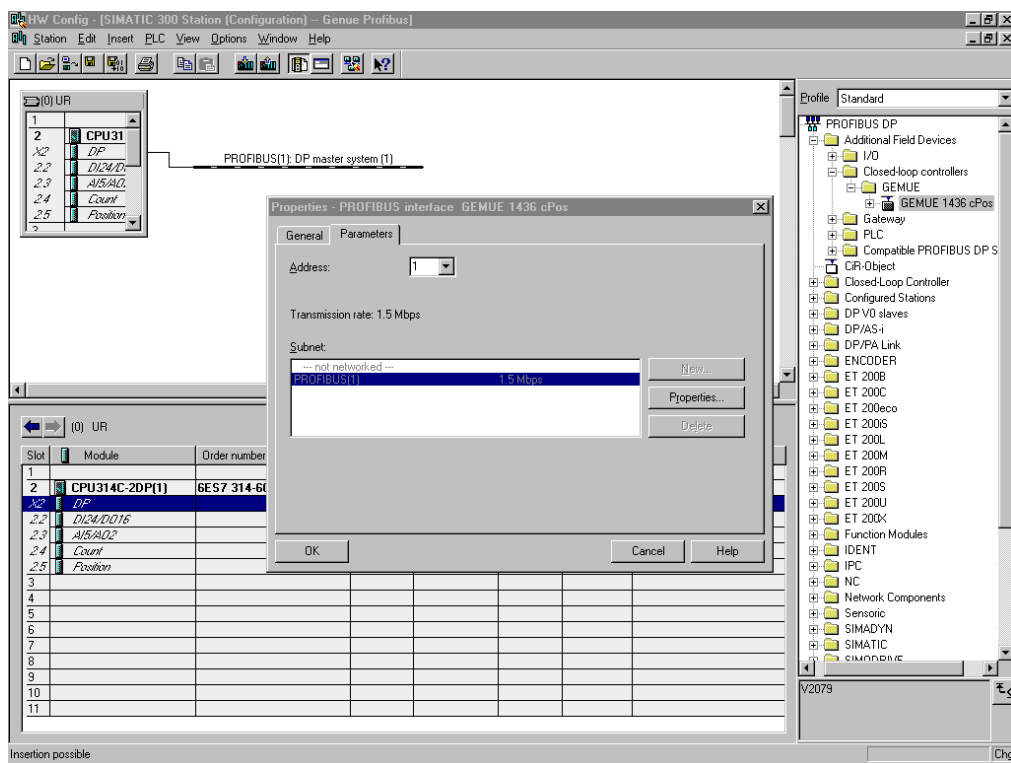
Select transmission speed and confirm with "OK"

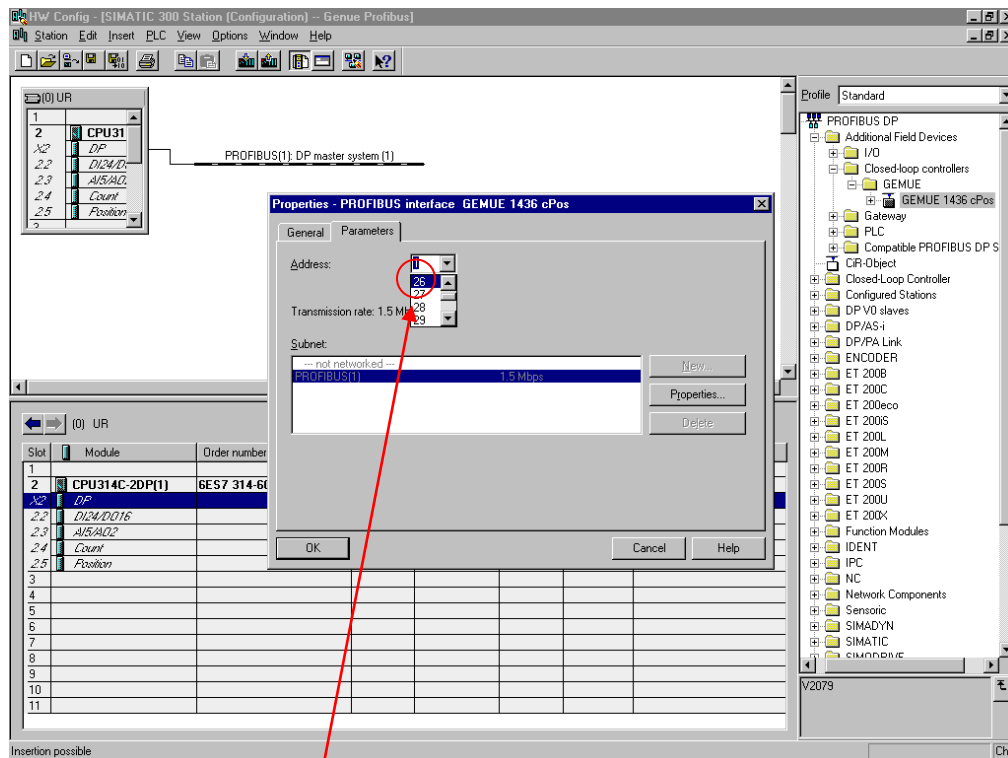


Click on "OK"

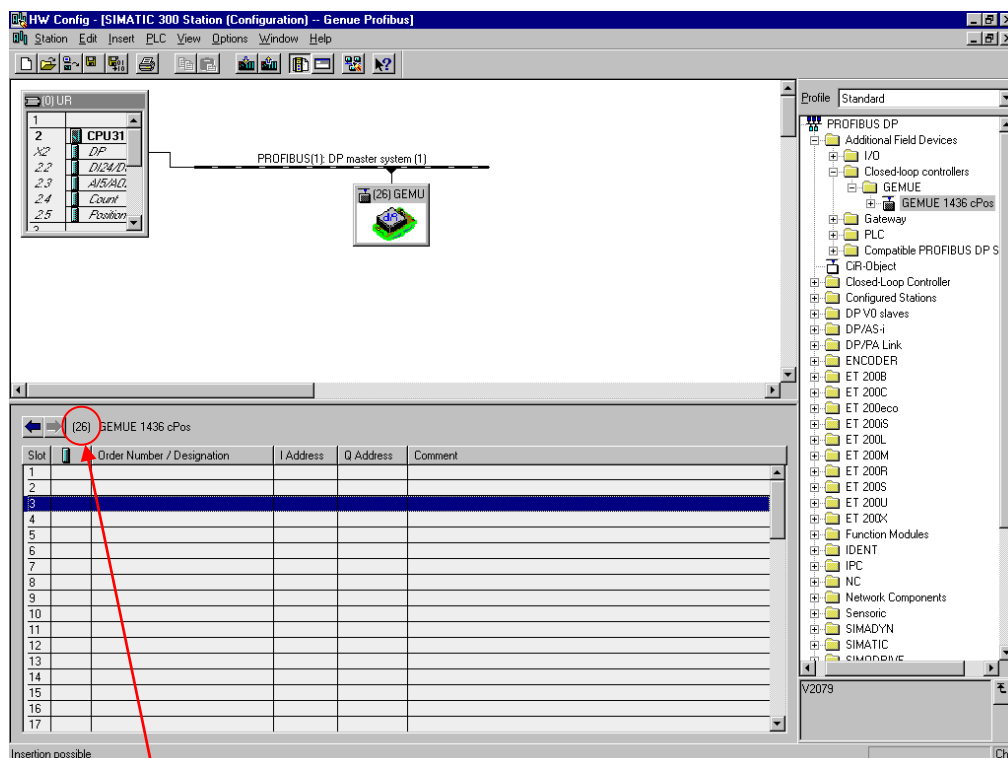


Drag selection into window

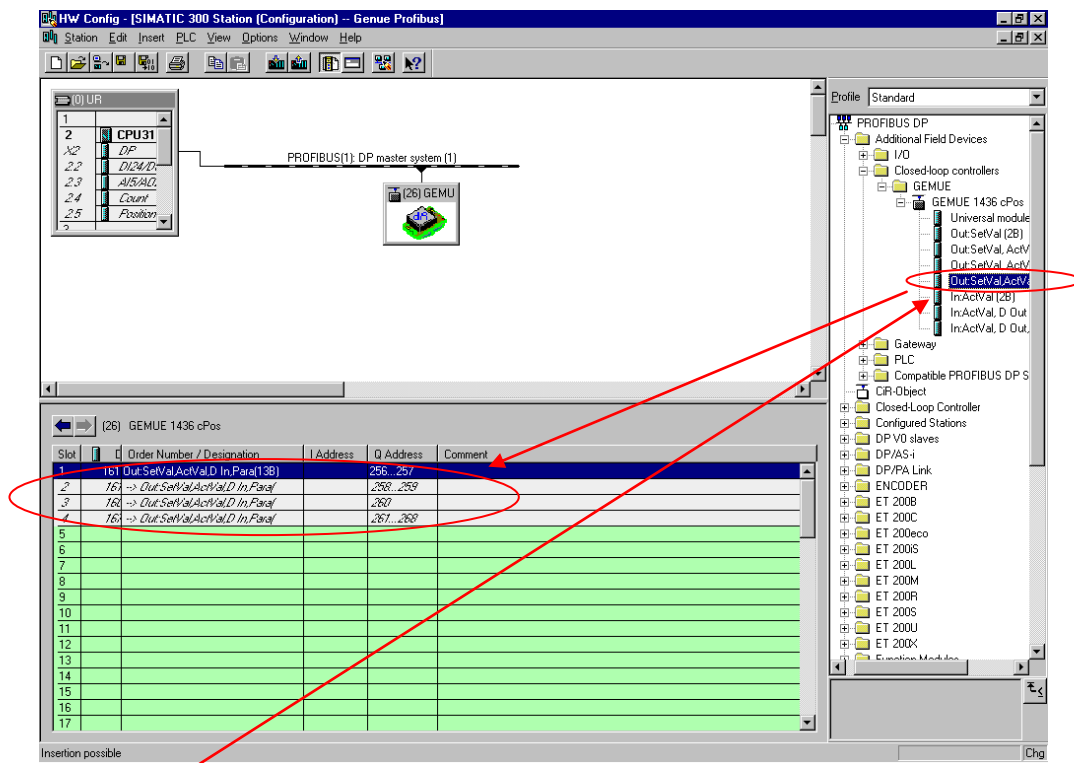




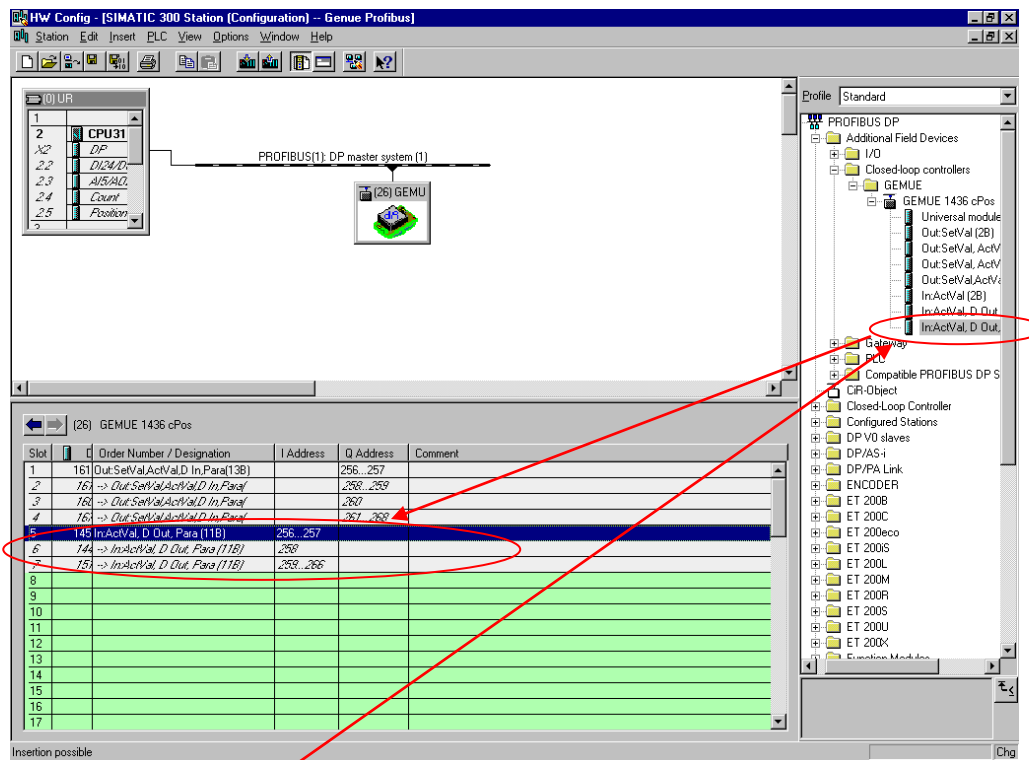
Set Profibus address of the GEMÜ 1436 cPos (default setting 26)



Set Profibus address (26)

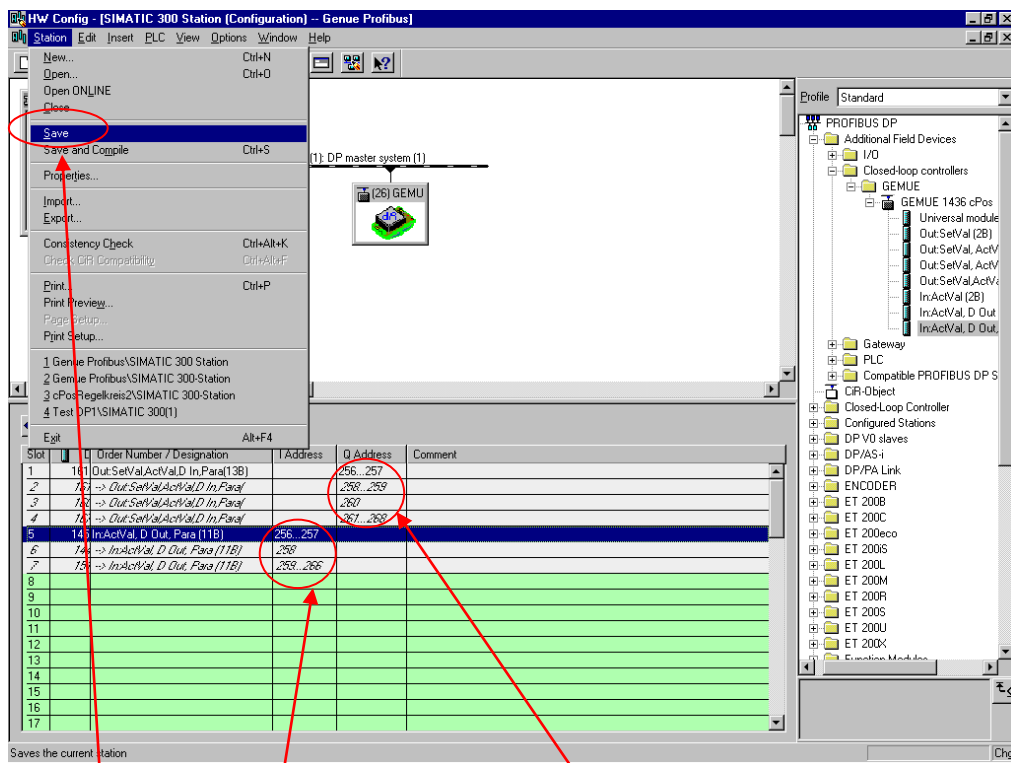


Select outputs (click and drag into table)
ATTENTION! Only 1 configuration



Select inputs (click and drag into table)
ATTENTION! Only 1 configuration

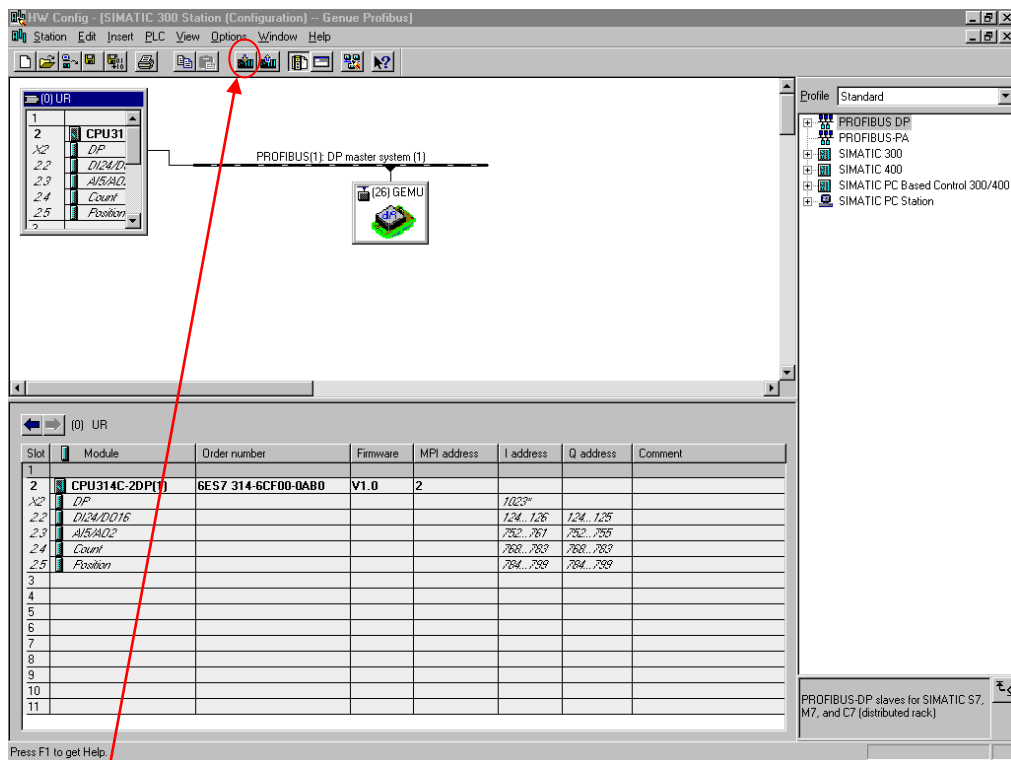
The GEMÜ 1436 cPos identifies the configuration on the basis of the block length. No settings required.



Save settings

Input addresses (no action)

Output addresses (no action)



Load configuration in SPS.

The screenshot shows the 'HW Config' window for a SIMATIC 300 station. The left pane shows the hardware rack configuration with slots 1 through 9. Slot 1 contains the CPU 314C-2 DP (1). Slot 2 contains the DP module. Slot 3 contains the DI24/DO16 module. Slot 4 contains the AI5/AO2 module. Slot 5 contains the Zähler module. Slot 6 contains the Positionieren module. The right pane shows the 'Profibus' configuration with a 'Standard' profile. The bottom pane shows a table of the configured hardware.

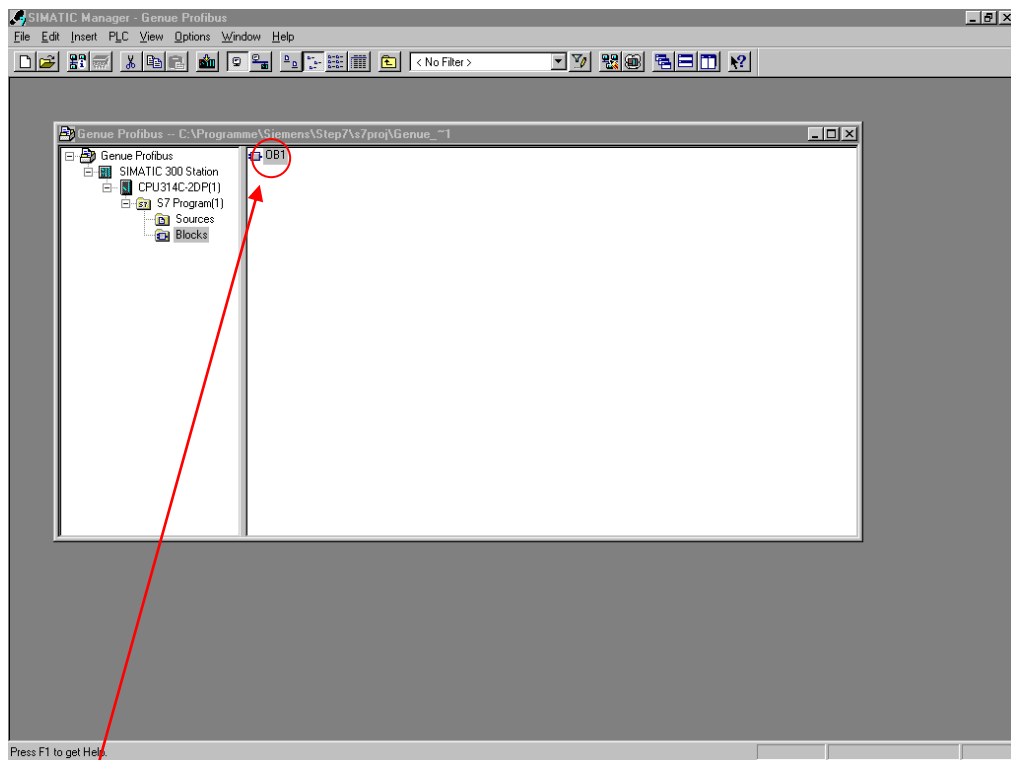
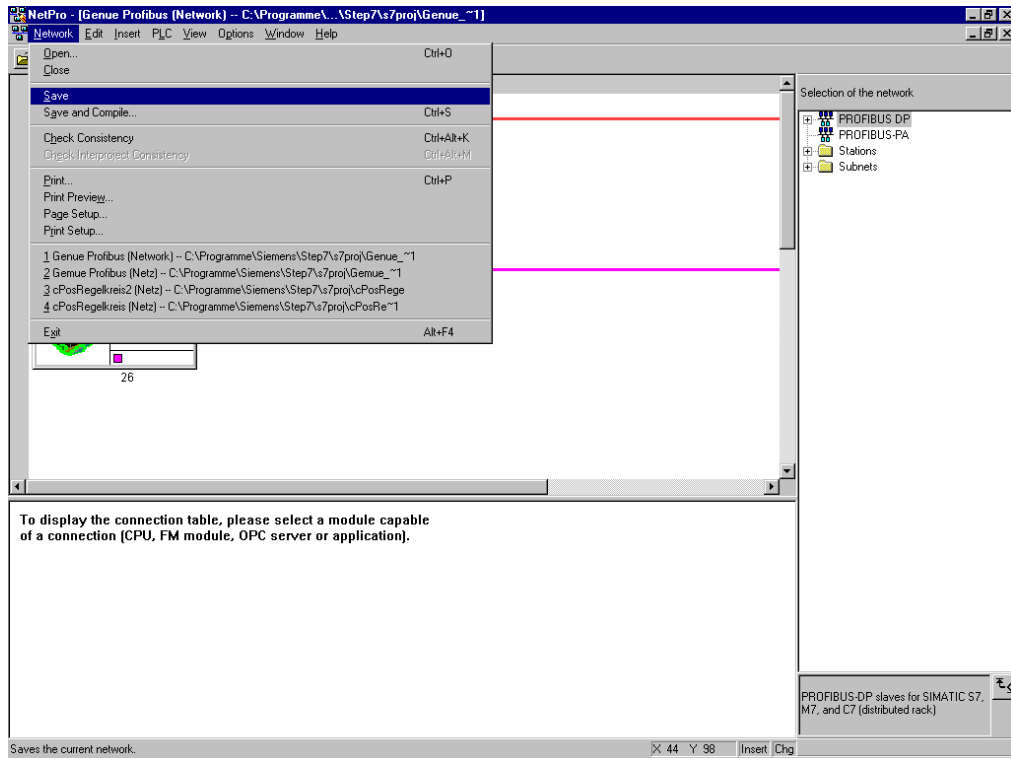
Steckplatz	Baugruppe	Bestellnummer	Firmware	MPI-Adresse	E-Adresse	A-Adresse	Kommentar
1							
2	CPU314C-2DP(1)	6ES7 314-6CG00-0AB0	V1.0	2			
3	DP				1023*		
4	DI24/DO16				124...126	124...125	
5	AI5/AO2				762...761	762...765	
6	Zähler				768...763	768...763	
7	Positionieren				764...769	764...769	
8							
9							
10							
11							

Drücken Sie F1, um Hilfe zu erhalten.

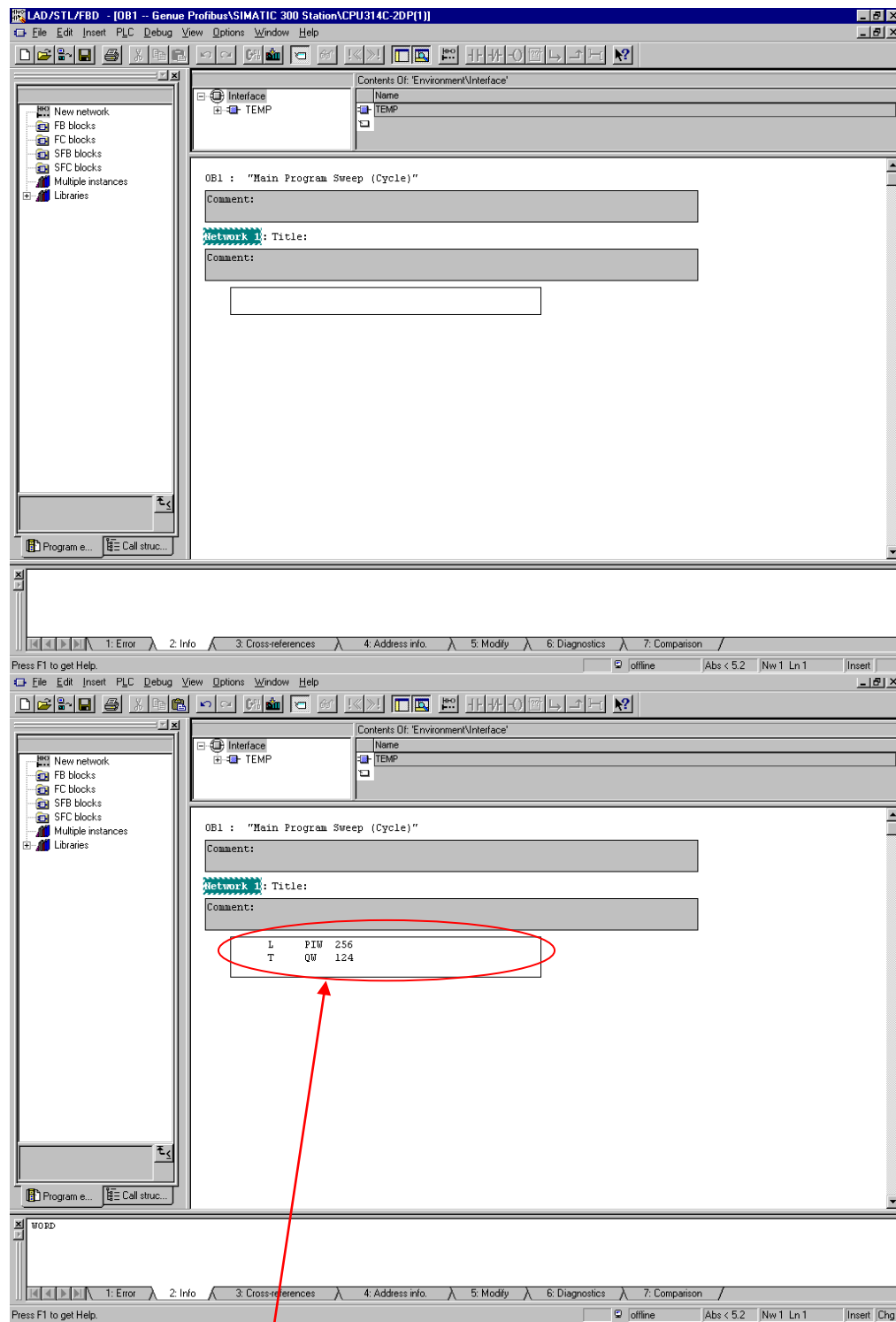
The screenshot shows the 'Network Manager' window. The left pane shows the network topology with a SIMATIC 300 station connected to a GEMU 1436 cPos positioner via a Profibus DP connection. The right pane shows the 'Selection of the network' dialog with options for PROFIBUS DP, PROFIBUS-PA, Stations, and Subnets. The bottom pane contains a message about displaying the connection table.

To display the connection table, please select a module capable of a connection (CPU, FM module, OPC server or application).

PROFIBUS-DP slaves for SIMATIC S7, M7, and C7 (distributed rack)

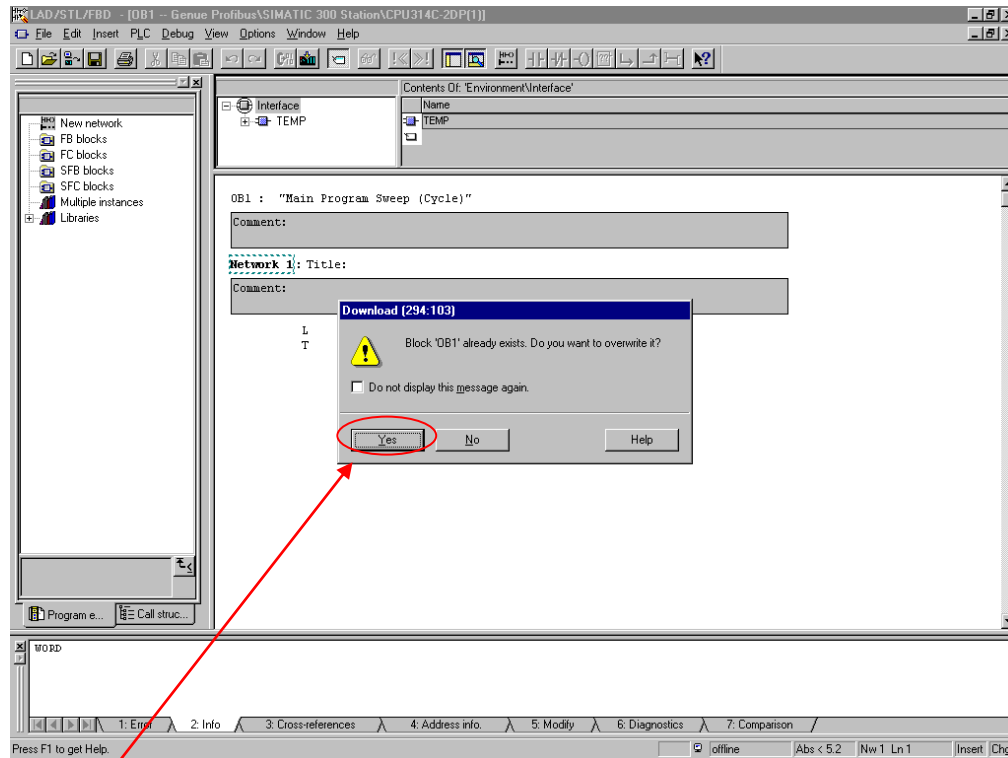


Program OB1

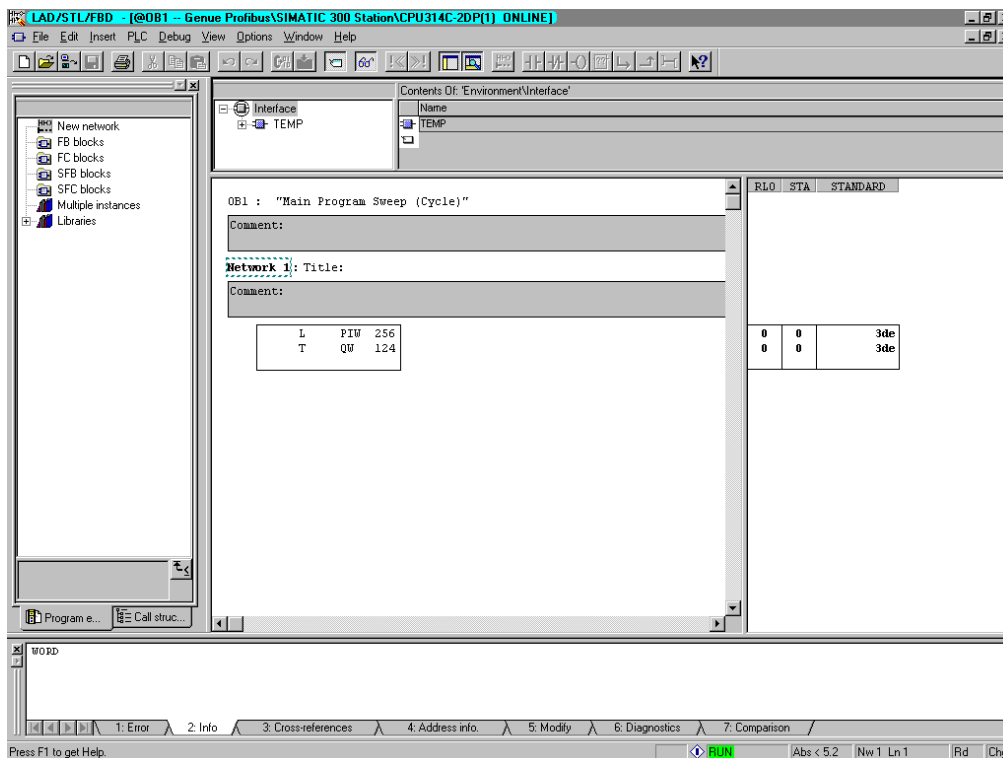


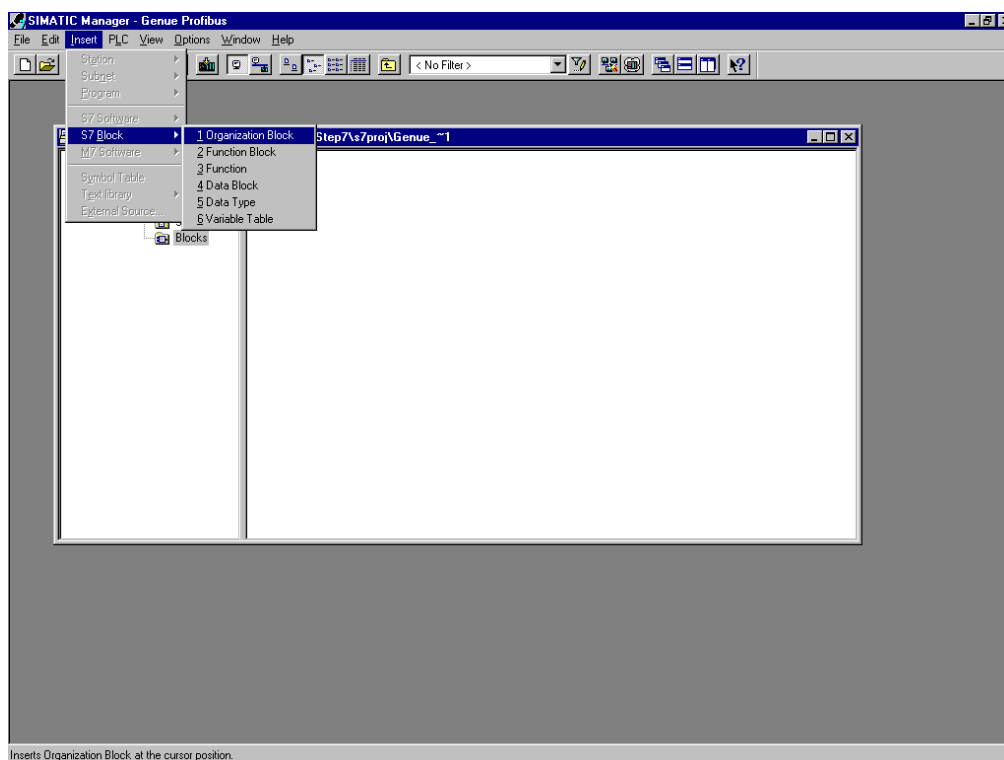
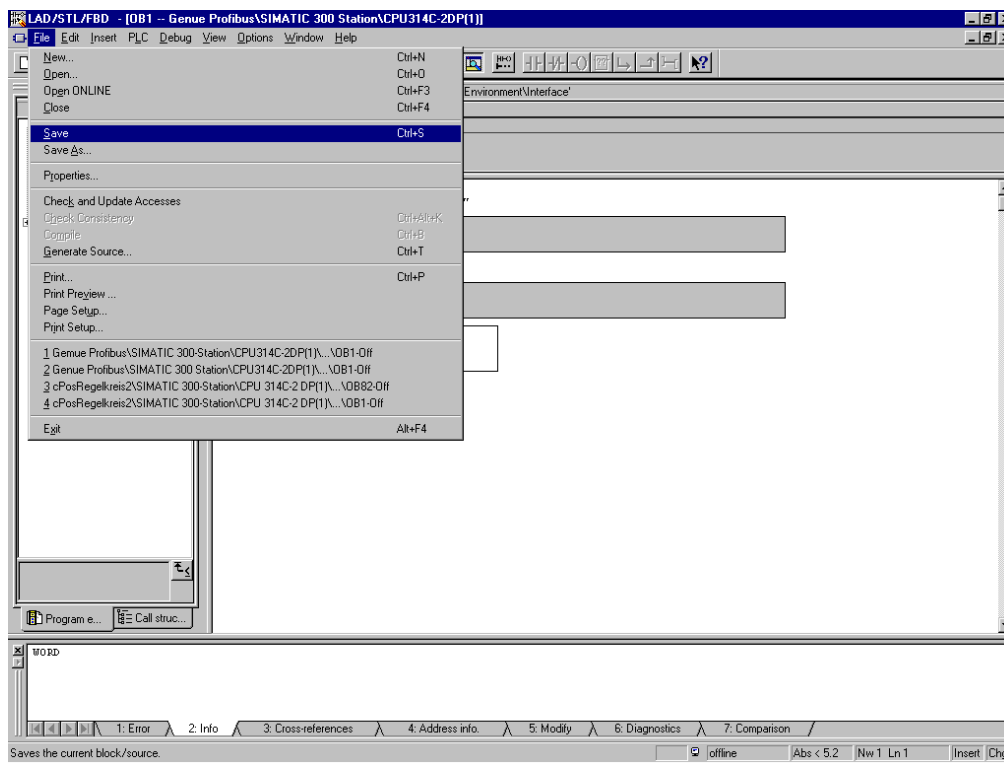
Ex. Input valve position and output to outputs.

ATTENTION! Addresses above 127 must be accessed using PEW, PEB, PAW, PAB....

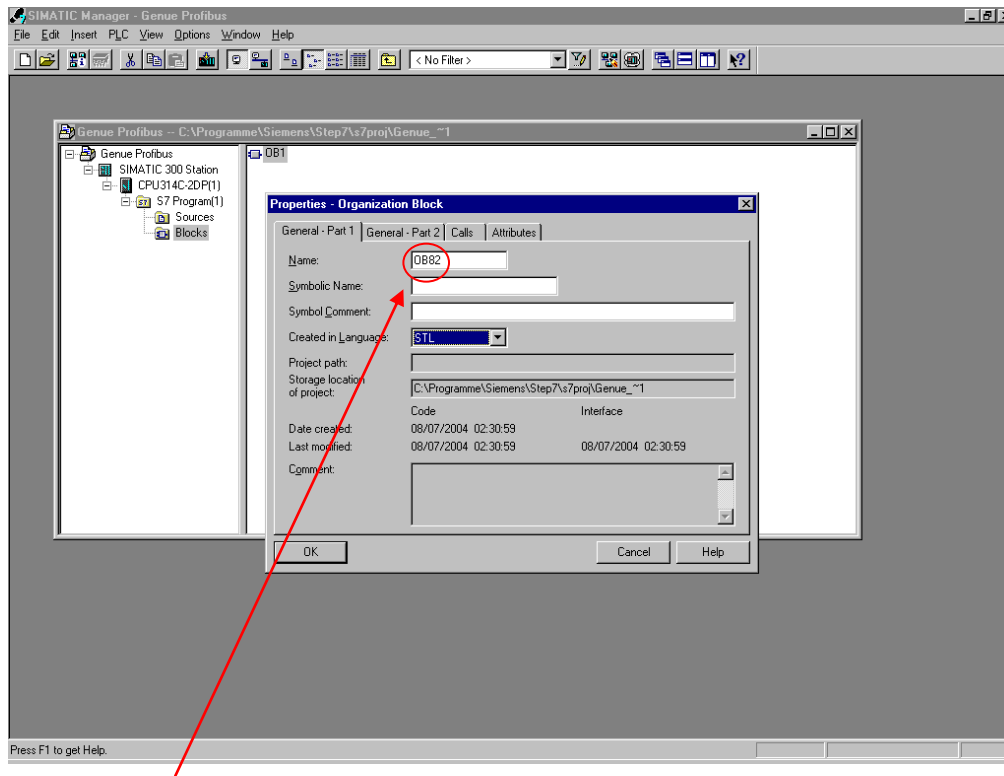


Confirm by clicking on "Yes"

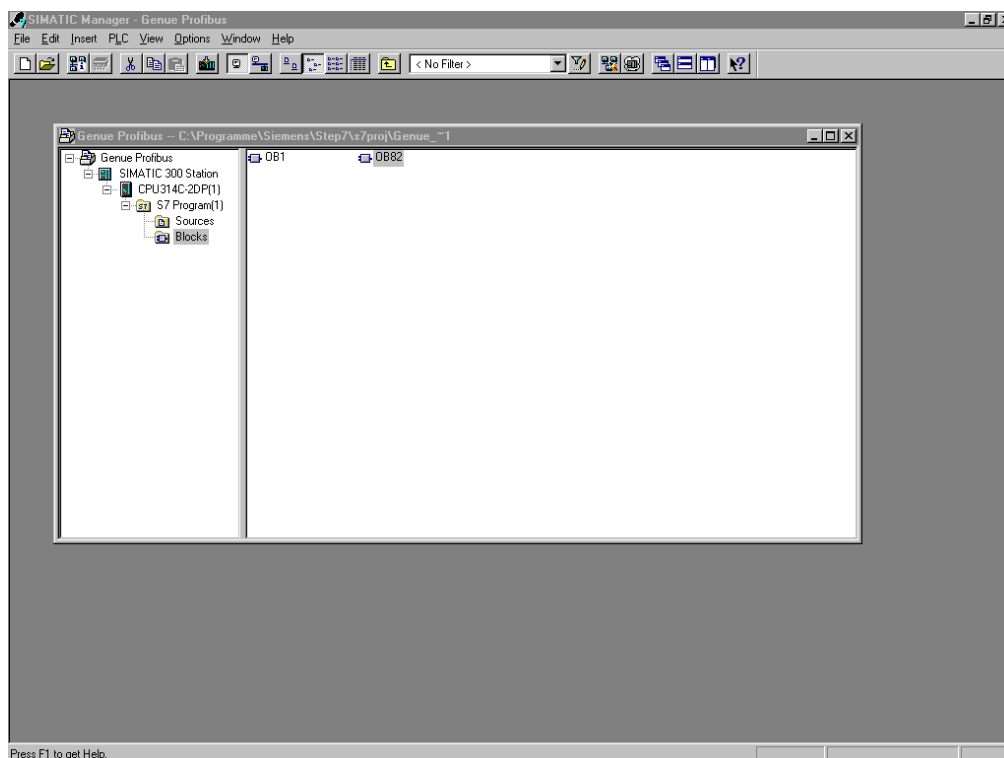


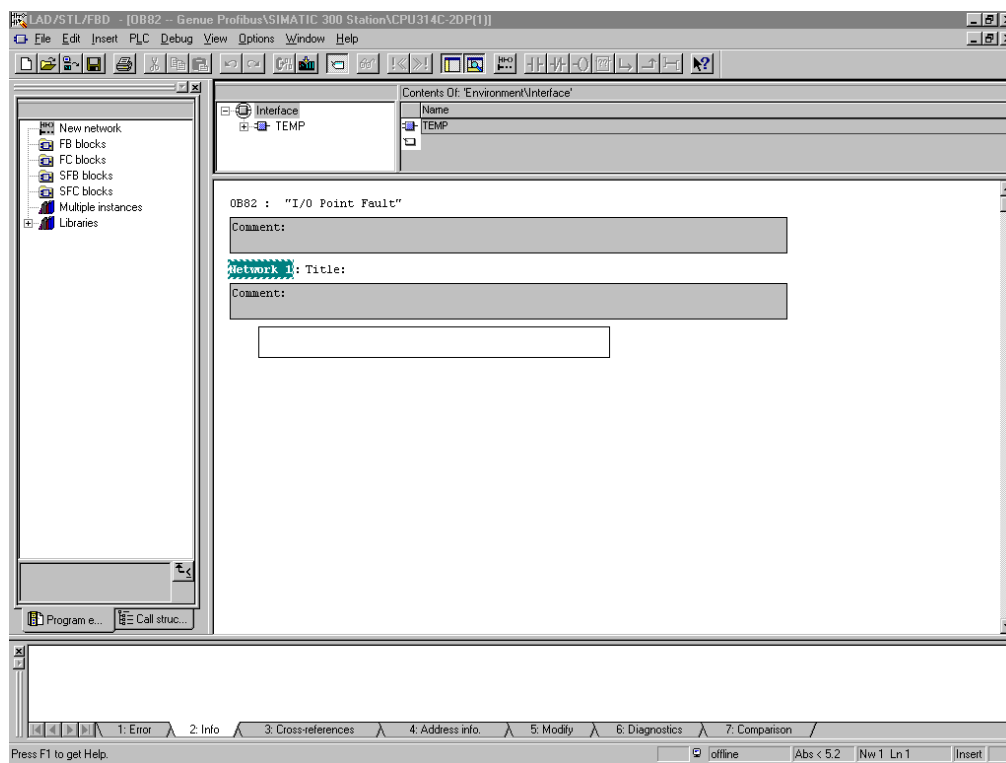


Create new organisation module



Errors are trapped in organisation module OB82.
ATTENTION! This operation module must be generated.





No storage of function required

Manufacturer's declaration

According to the EC Machine Directive 98/37/EC, Appendix II B

We hereby declare that the device described in this specification is intended for installation in a machine or application whose commissioning is prohibited until it has been determined that this machine/application conforms to EC Directive 98/37/EC.

Handling, assembly and commissioning, in addition to setting and adjustment of the machine must be performed only by authorized specialist staff.

